United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with the Costilla Soil Conservation District and the Colorado State University Agricultural Experiment Station

# Soil Survey of Costilla County Area, Colorado



# How To Use This Soil Survey

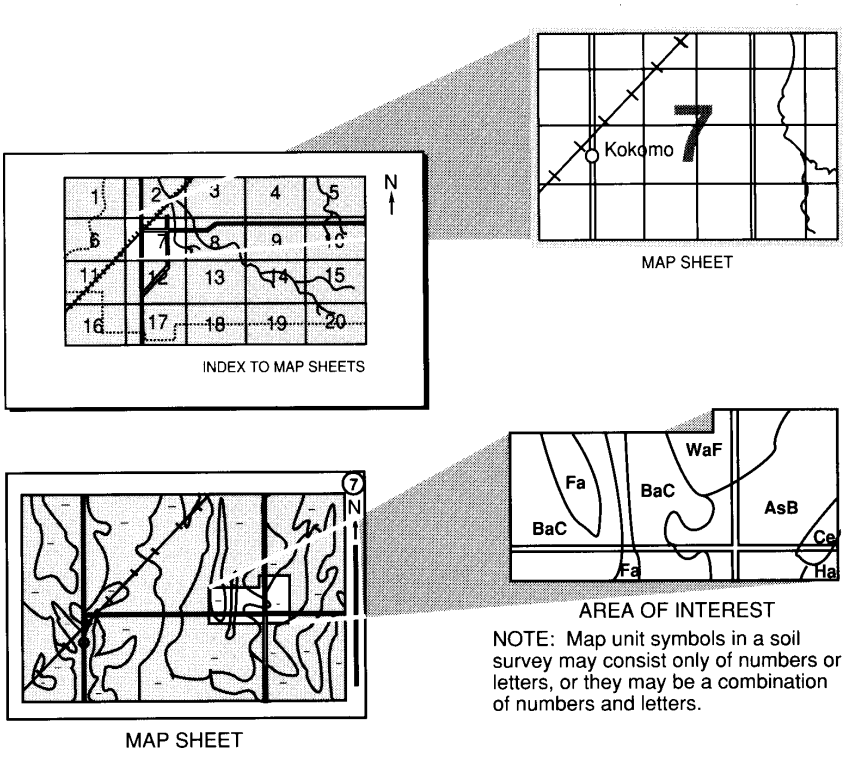
**Detailed Soil Maps**

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.




NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 2006. Soil names and descriptions were approved in 2008. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2005. This survey was made cooperatively by the Natural Resources Conservation Service, the Costilla Soil Conservation District, and the Colorado State University Agricultural Experiment Station. The survey is part of the technical assistance furnished to the Costilla County Soil Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

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**Cover: Potato field in Costilla County on Cososa loamy sand, 0 to 3 percent slopes.**

*Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.*

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# Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.



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# Soil Survey of
# Costilla County Area, Colorado

By Alan J. Stuebe

Fieldwork by Alan J. Stuebe, Jim Harrigan, Kari Mauch, and Marisa Rice, Natural Resources Conservation Service; Daryll Trickler and Harold W. Hyde, Contractor SCD
Quality assurance by James Borchert, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
the Costilla Soil Conservation District, and the Colorado State University Agricultural Experiment Station

The Costilla County Area consists of the east-central part of the San Luis Valley in Colorado. It is located in the south-central part of the state (Fig. 1). The survey area covers 789,600 acres. A large part of the county is on a nearly level outwash plain, where elevation is about 7,600 feet. Elevations rise to over 14,000 feet along the Sangre de Cristo Range to the north and east. The area is drained to the south by the Rio Grande and Costilla Rivers.

The climate is cold and dry. The average annual temperature at San Luis is 41 degrees F, and the average annual precipitation is about 10 inches. The average growing season is about 95 days at San Luis. Tables 1-3 show climate information for the survey area.

The Costilla County Area consists mainly of farms, ranches, and undeveloped subdivisions. The principal enterprises are raising irrigated crops and cattle. Potatoes, small grains, and alfalfa are the main crops.

## General Nature of the Survey Area

This section gives general information concerning the area. It discusses history and development, natural resources, farming, and climate.

### History and Development

The name “Costilla” is a word of Spanish derivation and means “rib” (Bean, 1975). The area was originally Spanish territory for many years, and later became part of Mexico and subsequently a part of the United States during the Mexican War. The county was formed from part of the old Sangre de Cristo Grant (Bean, 1975).

San Luis, the county seat, is at an elevation of 7,965 feet (2,428 meters). The population was 739 according to the 2000 census. San Luis was founded in 1851 and is the oldest town in the state of Colorado. Agriculture is the main source of income for the county.

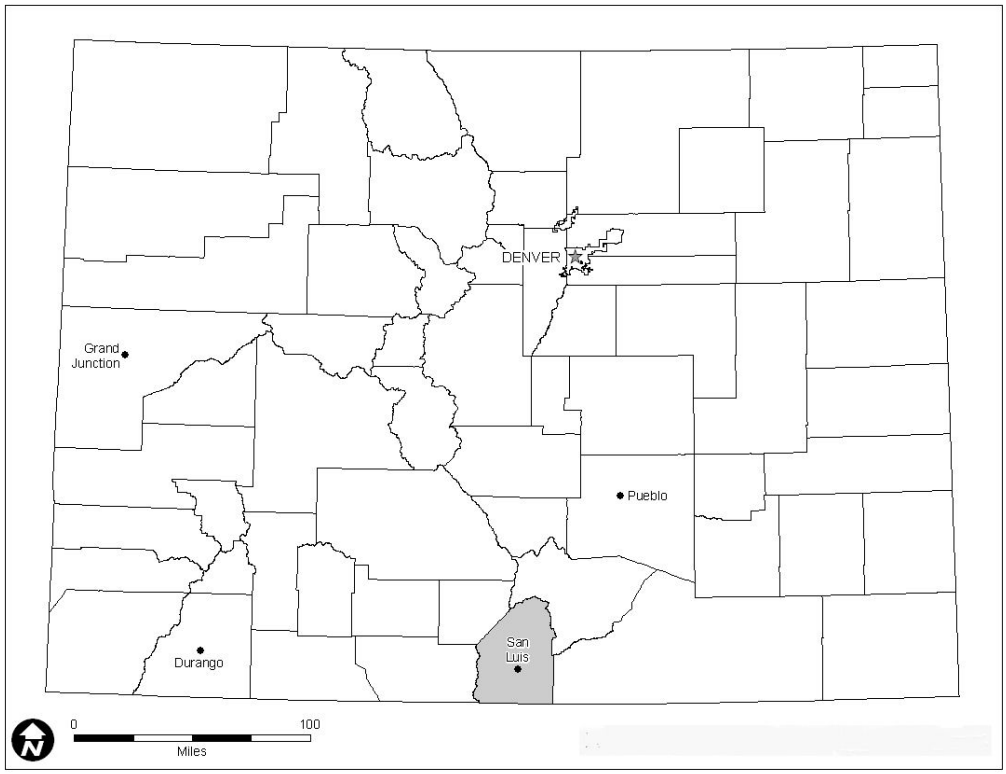



**Figure 1.—Location of Costilla County in Colorado.**

## Natural Resources

Soil and water are the most important natural resources of the county. The soil can produce good yields for potatoes, small grains, and alfalfa in many parts of the county. Water is obtained by an underlying aquifer and many irrigation canals through-out the area. *acequias*, or irrigation ditches, provide water to nearby farms by the town of San Luis. The water resource is vital to the agriculture of the area.

### Farming

Irrigated farming and ranching are the principal sources of income in the survey area. Potatoes, small grains, and alfalfa are the main crops grown in the county. Many of the irrigated farms are used for raising winter feed for cattle. Irrigated hay meadows adjacent to streams are used for pasture in fall and early spring.

There are about 205 farms and ranches in Costilla County. Of the cropland area, about 5,000 acres are used for potatoes, 19,000 acres for alfalfa, and 7,000 for small grains. Ranches for raising cattle are mostly over 640 acres in size. The total number of cattle in Costilla County in 2008 was 7,000 head.

### Geology of Costilla County

By Jim Harrigan, Soil Scientist, Natural Resources Conservation Service and Michael Machette, Geologist, United States Geological Survey

Costilla County has diverse geology because of two great ancient mountain-building events, a more recent (Neogene) rifting event. Due to its location in the San Luis Valley, it is the receptor of alluvium from the Rio Grande and eolian deposits from westerly winds. In 1939, J.E. Upson published a widely accepted model that divides

the San Luis Valley into five physiographic regions (Upson, 1939). Costilla County lies astride all five regions.

The Sangre de Cristo Mountains and the Culebra Range underlie the eastern edge of Costilla County. The main Sangre de Cristo Mountains is a lengthy, narrow, jagged uplifted fault block having major faults on its east and west margins, and within the mountains. The oldest mountain-building event was the Colorado Orogeny (about 325 million years ago), but evidence for this is only contained within eroded remnants and deposits of the Ancestral Rockies. The second mountain-building event to shape the mountains was the Laramide Orogeny which thrust Cretaceous and older rocks upon themselves, creating stacked sequences of Paleozoic and Precambrian rocks within the Sangre de Cristos. Finally, regional uplift and extension, staring about 25 million years ago , with creation of the Rio Grande rift, a thousand-mile long N-S extensional basin with uplifted mountains on its flanks. As a result of these discrete mountain-building events, today one can find various sedimentary formations and metamorphic rocks out of sequence in the mountains. Within Costilla County, the older rocks include the Sangre de Cristo Formation consisting of Pennsylvanian and Permian sandstones, conglomerates and red shales; the Madera Formation consisting of mid-Pennsylvanian gray limestone and cherty limestone, interbedded with gray and red, arkosic sandstone, siltstone and shale; and metamorphic rocks consisting of Proterozoic gneiss, schist, quartzite, and conglomerate (Aber, 2007).

The San Juan Mountains form the western side of the San Luis Valley far beyond the Costilla County line, but they are the source of the sandy Rio Grande alluvium west of Blanca and throughout the valley near Alamosa. The sand has been transported to the San Luis Valley by the Rio Grande, and blown farther east by prevailing southwesterly winds. Upson calls this depositional plain the Alamosa Basin (Upson, 1939). In contrast to the Alamosa Basin, the Costilla Plain contains well developed soils beginning south of Blanca, and extending south to the New Mexico state line. The Costilla Plain tilts to the west, while the Alamosa Basin tilts eastward, both reflecting original stream gradients from the mountains. The Sangre de Cristo Mountains have been altered geomorphically by intensive Pleistocene glaciation, the most recent of which subsided by 12,000-15,000 years ago. Glacial deposits are restricted to higher mountain elevations and are best preserved in north-facing basins. However, glacial outwash alluvium extends well into the valley adjacent to high mountain basins.

The San Luis Hills constitutes a small portion of the county north and west of San Acacio. The andesitic to dacitic hills are time equivalents to portions of the mid-Tertiary volcanic series of the San Juan Mountains (Thompson & Machette, 1989). After most of the volcanism ceased in the San Juan Mountains, rifting began in the valley about 25 million years ago as evidenced by Miocene fossils in basin fill of the Santa Fe Group and by 26-30 million years ago on interbedded volcanic rocks (Chapin, 1971). Younger rifting is also responsible for the formation of horst and graben topography in the San Luis reentrant from Fort Garland south through the Sanchez Reservoir and the San Pedro Mesa. The Servilleta basalts, which cap San Pedro Mesa and Garland Mesa (southeast of Blanca near Trinchera Creek are dated at 4-8 to 3.7 million years in the county (Burroughs, 1971).

The Taos Plateau begins near the town of Jaroso, and extends south along the Rio Grande deep into New Mexico. The Taos Plateau is a broadly undulating area of Servilleta basalt, or sediment covering basalt, predominantly south of the San Luis Hills. Only a small portion of the Taos Plateau lies within the survey area in the extreme southwest corner.

Surficial deposits consisting of mainly of stream alluvium are widespread in the Costilla Plain and within the grabens. The uplifted basalt covered mesas commonly are surrounded by landslides, rockfalls, and colluvium, all of which are unstable if disturbed.

### Climate

Prepared by the Natural Resources Conservation Service National Water and Climate Center, Portland, Oregon.

Climate tables are created from the climate station at Blanca, Colorado.

Thunderstorm days, relative humidity, percent sunshine, and wind information are estimated from First Order station in Alamosa, Colorado.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Blanca in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 20.9 degrees F and the average daily minimum temperature is 4.7 degrees. The lowest temperature on record, which occurred at Blanca on January 6, 1971, is -38 degrees. In summer, the average temperature is 62.3 degrees and the average daily maximum temperature is 79.4 degrees. The highest temperature, which occurred at Blanca on July 10, 1964, is 97 degrees.

Growing degree days are shown in Table 1. They are equivalent to “heat units”. During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual total precipitation is about 9.25 inches. Of this, about 4.69 inches, or 51 percent, usually falls in June through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 1.47 inches at Blanca on September 21, 1997. Thunderstorms occur on about 48 days each year, and most occur in July.

The average seasonal snowfall is 30.9 inches. The greatest snow depth at any one time during the period of record was 13 inches recorded on March 31, 2000. On average, 35 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 13.0 inches recorded on March 31, 2000 and November 20, 1994.

The average relative humidity in mid-afternoon is about 38 percent. Humidity is higher at night, and the average at dawn is about 79 percent. The sun shines 65 percent of the time in summer and 52 percent in winter. The prevailing wind is from the south-southwest. Average wind speed is highest, 10.4 miles per hour, in April.

## How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the

landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

This survey area was mapped at two levels of detail. At the more detailed level, map units are narrowly defined. Map unit boundaries were plotted and verified at closely spaced intervals. At the less detailed level, map units are broadly defined. Boundaries were plotted and verified at wider intervals. The broadly defined units are indicated by an asterisk in the legend for the detailed soil maps. The detail of mapping was selected to meet the anticipated long-term use of the survey, and the map units were designed to meet the needs for that use.

# Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series.* All the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown

on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Cososa loamy sand, 0 to 3 percent slopes, is a phase of the Cososa series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Sanpedro-Potrio-Rock outcrop complex, 3 to 9 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop-Rubble land complex, 45 to 90 percent slopes, is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The *Glossary* defines many of the terms used in describing the soils or miscellaneous areas.

## AmC—Amalia very gravelly coarse sandy loam, 3 to 9 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 8,000 to 9,300 feet (2,438 to 2,835 meters)
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

### Map Unit Composition

Amalia and similar soils: 85 percent
Minor components: 15 percent

### Component Descriptions

**Amalia soils**
*Landscape:* Intermontane basins
*Landform:* Outwash fans
*Parent material:* Outwash derived from granite, gneiss, and mica schist
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/convex
*Surface fragments:* About 45 percent subrounded gravel, about 5 percent subrounded cobbles
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)
*Available water capacity:* About 3.7 inches (low)
*Shrink-swell potential:* About 0.7 percent (low)
*Calcium carbonate maximum:* About 30 percent
*Gypsum maximum:* None
*Salinity maximum:* About 1 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Valley Bench



**Figure 2.—Typical landscape of Amalia very gravelly coarse sandy loam, 3 to 9 percent slopes.**

*Potential native vegetation:* western wheatgrass, blue grama, Wyoming big sagebrush, needleandthread, Indian ricegrass, fourwing saltbush, sand dropseed, winterfat
*Land capability subclass (irrigated):* 4c
*Land capability subclass (nonirrigated):* 6c

*Typical Profile:*
A—0 to 5 inches; very gravelly coarse sandy loam
Bt—5 to 11 inches; very gravelly clay loam
Btk—11 to 25 inches; very gravelly loam
Bk1—25 to 39 inches; very gravelly sandy loam
Bk2—39 to 80 inches; extremely gravelly loamy sand

**Minor Components**
Trinchera and similar soils
*Composition:* About 10 percent
*Landscape:* Intermontane basins
*Landform:* Outwash fans
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

Uracca and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins

*Landform:* Fan remnants
*Slope:* 3 to 9 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

## AmE—Amalia very gravelly coarse sandy loam, 9 to 35 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 8,000 to 9,300 feet (2,438 to 2,835 meters)
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

### Map Unit Composition

Amalia and similar soils: 85 percent
Minor components: 15 percent

### Component Descriptions

**Amalia soils**
*Landscape:* Intermontane basins
*Landform:* Outwash fans
*Parent material:* Outwash derived from granite, gneiss, and mica schist
*Slope:* 9 to 35 percent
*Aspect:* South to west
*Shape (down/across):* Convex/linear
*Surface fragments:* About 45 percent subrounded gravel, about 5 percent subrounded cobbles
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)
*Available water capacity:* About 3.7 inches (low)
*Shrink-swell potential:* About 0.7 percent (low)
*Calcium carbonate maximum:* About 30 percent
*Gypsum maximum:* None
*Salinity maximum:* About 1 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Valley Bench
*Potential native vegetation:* western wheatgrass, blue grama, Wyoming big sagebrush, needleandthread, Indian ricegrass, fourwing saltbush, sand dropseed, winterfat
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
A—0 to 5 inches; very gravelly coarse sandy loam
Bt—5 to 11 inches; very gravelly clay loam
Btk—11 to 25 inches; very gravelly loam
Bk1—25 to 39 inches; very gravelly sandy loam
Bk2—39 to 80 inches; extremely gravelly loamy sand

**Minor Components**
Trinchera and similar soils
*Composition:* About 10 percent
*Landscape:* Intermontane basins
*Landform:* Outwash fans
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

Uracca and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Fan remnants
*Slope:* 5 to 35 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

## Aq—Cumulic Cryaquolls, 0 to 2 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A
*Elevation:* 9,000 to 12,000 feet (2,743 to 3,658 meters)
*Mean annual precipitation:* 16 to 25 inches (406 to 635 millimeters)
*Mean annual air temperature:* 34 to 41 degrees F. (1.0 to 5.0 degrees C.)
*Frost-free period:* 40 to 70 days

### Map Unit Composition

Cumulic Cryaquolls and similar soils: 85 percent
Minor components: 15 percent

### Component Descriptions

**Cumulic Cryaquolls soils**
*Landscape:* Mountains
*Landform:* Ephemeral streams, flood plains
*Parent material:* Fine-silty alluvium over gravelly glaciofluvial deposits derived from granite
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Concave/concave
*Depth class:* Very deep
*Depth to restrictive feature:* 20 to 40 inches to abrupt textural change
*Drainage class:* Poorly drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 5.4 inches (low)
*Shrink-swell potential:* About 1.1 percent (low)
*Flooding hazard:* Frequent
*Ponding hazard:* Occasional
*Seasonal high water table depth:* About 0 to 6 inches

*Calcium carbonate maximum:* About 5 percent
*Gypsum maximum:* None
*Salinity maximum:* About 1 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Mountain Meadow
*Potential native vegetation:* tufted hairgrass, Nebraska sedge, slender wheatgrass, sedge, cinquefoil, iris, western yarrow
*Land capability subclass (nonirrigated):* 6w

*Typical Profile:*
A1—0 to 6 inches; silt loam
A2—6 to 20 inches; loam
AC—20 to 27 inches; loam
C—27 to 33 inches; gravelly loam
2C—33 to 80 inches; gravel

**Minor Components**
Lambe and similar soils
*Composition:* About 10 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainbase, mountaintop
*Slope:* 3 to 8 percent
*Aspect:* Southwest
*Shape (down/across):* Linear/convex
*Drainage class:* Well drained
*Ecological site:* Loamy Park

Woodhall and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Slope:* 3 to 8 percent
*Aspect:* Southwest
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic
*Drainage class:* Well drained
*Ecological site:* Loamy Park

## BfA—Blanfort fine sandy loam, 0 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

### Map Unit Composition

Blanfort and similar soils: 85 percent
Minor components: 15 percent

## Component Descriptions

**Blanfort soils**
*Landscape:* Intermontane basins
*Landform:* Fan remnants
*Parent material:* Slope alluvium over alluvium derived from calcareous sandstone
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 5 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Available water capacity:* About 8.2 inches (moderate)
*Shrink-swell potential:* About 0.8 percent (low)
*Calcium carbonate maximum:* About 20 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Sandy Bench
*Potential native vegetation:* Indian ricegrass, blue grama, needleandthread, skunkbush sumac, buckwheat, fourwing saltbush, sand dropseed, scarlet globemallow, spike dropseed, western wheatgrass
*Land capability subclass (irrigated):* 4c
*Land capability subclass (nonirrigated):* 6c

*Typical Profile:*
A—0 to 2 inches; fine sandy loam
Bw1—2 to 7 inches; fine sandy loam
Bw2—7 to 16 inches; fine sandy loam
Bk1—16 to 28 inches; fine sandy loam
Bk2—28 to 56 inches; fine sandy loam
BC—56 to 80 inches; fine sandy loam

**Minor Components**
Trinchera and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Outwash plains
*Slope:* 1 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

Kibin and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification
*Drainage class:* Well drained
*Ecological site:* Valley Bench

Stunner and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Outwash fans
*Slope:* 1 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Valley Bench

## BfD—Blanfort fine sandy loam, 3 to 9 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

### Map Unit Composition

Blanfort and similar soils: 85 percent
Minor components: 15 percent

### Component Descriptions

**Blanfort soils**
*Landscape:* Intermontane basins
*Landform:* Fan remnants
*Parent material:* Slope alluvium over alluvium derived from calcareous sandstone
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Convex/linear
*Surface fragments:* About 5 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Available water capacity:* About 8.2 inches (moderate)
*Shrink-swell potential:* About 0.8 percent (low)
*Calcium carbonate maximum:* About 20 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Sandy Bench
*Potential native vegetation:* Indian ricegrass, blue grama, needleandthread, skunkbush sumac, buckwheat, fourwing saltbush, sand dropseed, scarlet globemallow, spike dropseed, western wheatgrass

*Land capability subclass (irrigated):* 6e
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
A—0 to 2 inches; fine sandy loam
Bw1—2 to 7 inches; fine sandy loam
Bw2—7 to 16 inches; fine sandy loam
Bk1—16 to 28 inches; fine sandy loam
Bk2—28 to 56 inches; fine sandy loam
BC—56 to 80 inches; fine sandy loam

**Minor Components**
Shawa and similar soils
*Composition:* About 10 percent
*Landscape:* Intermontane basins
*Landform:* Fan remnants, stream terraces
*Position on landform:* Tread
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

Trinchera and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Outwash fans
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

## CsA—Cososa loamy sand, 0 to 3 percent slopes

**Map Unit Setting**

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

**Map Unit Composition**

Cososa and similar soils: 85 percent
Minor components: 15 percent

**Component Descriptions**

**Cososa soils**
*Landscape:* Intermontane basins
*Landform:* Outwash plains

*Parent material:* Outwash derived from granite, gneiss, and mica schist
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 10 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 5.8 inches (low)
*Shrink-swell potential:* About 1.1 percent (low)
*Calcium carbonate maximum:* About 25 percent
*Gypsum maximum:* None
*Salinity maximum:* About 5 mmhos/cm (slightly saline)
*Sodium adsorption ratio maximum:* About 9 (slightly sodic)
*Ecological site:* Sandy Bench
*Potential native vegetation:* Indian ricegrass, blue grama, needleandthread, skunkbush, buckwheat, fourwing saltbush, sand dropseed, scarlet globemallow, spike dropseed, western wheatgrass
*Land capability subclass (irrigated):* 4e
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
A—0 to 6 inches; loamy sand
Bw—6 to 14 inches; gravelly fine sandy loam
Bk1—14 to 21 inches; gravelly loamy sand
Bk2—21 to 49 inches; gravelly sandy clay loam
2Bk1—49 to 57 inches; gravelly loamy sand
2Bk2—57 to 74 inches; very gravelly coarse sand
2Bk3—74 to 80 inches; sandy loam

**Minor Components**

Costilla and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Alluvial flats
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Somewhat excessively drained
*Ecological site:* Valley Sand

McGinty and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Fan remnants, alluvial flats
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Sandy Bench

Mosca and similar soils
*Composition:* About 3 percent
*Landscape:* Intermontane basins

*Landform:* Alluvial flats
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 4 to 7 inches to natric
*Drainage class:* Well drained
*Ecological site:* Valley Sand

Durreo and similar soils
*Composition:* About 2 percent
*Landscape:* Intermontane basins
*Landform:* Volcanic hills
*Position on landform:* Summits
*Position on landform:* Side slope
*Slope:* 1 to 9 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Drainage class:* Well drained
*Ecological site:* Limy Bench

## CsD—Cososa loamy sand, 3 to 9 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

### Map Unit Composition

Cososa and similar soils: 85 percent
Minor components: 15 percent

### Component Descriptions

**Cososa soils**
*Landscape:* Intermontane basins
*Landform:* Outwash terraces, outwash fans
*Parent material:* Outwash derived from granite, gneiss, and mica schist
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/convex, linear
*Surface fragments:* About 10 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 5.8 inches (low)
*Shrink-swell potential:* About 1.1 percent (low)
*Calcium carbonate maximum:* About 25 percent
*Gypsum maximum:* None
*Salinity maximum:* About 5 mmhos/cm (slightly saline)
*Sodium adsorption ratio maximum:* About 9 (slightly sodic)
*Ecological site:* Sandy Bench

*Potential native vegetation:* Indian ricegrass, blue grama, needleandthread, skunkbush, buckwheat, fourwing saltbush, sand dropseed, scarlet globemallow, spike dropseed, western wheatgrass
*Land capability subclass (irrigated):* 6e
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
A—0 to 6 inches; loamy sand
Bw—6 to 14 inches; gravelly fine sandy loam
Bk1—14 to 21 inches; gravelly loamy sand
Bk2—21 to 49 inches; gravelly sandy clay loam
2Bk1—49 to 57 inches; gravelly loamy sand
2Bk2—57 to 74 inches; very gravelly coarse sand
2Bk3—74 to 80 inches; sandy loam

**Minor Components**
McGinty and similar soils
*Composition:* About 10 percent
*Landscape:* Intermontane basins
*Landform:* Alluvial fans
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Sandy Bench

Durreo and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Volcanic hills
*Position on landform:* Summits
*Position on landform:* Side slope
*Slope:* 1 to 9 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Drainage class:* Well drained
*Ecological site:* Limy Bench

## CtA—Costilla loamy sand, 0 to 3 percent slopes

**Map Unit Setting**

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

**Map Unit Composition**

Costilla and similar soils: 85 percent
Minor components: 15 percent

## Component Descriptions

**Costilla soils**
*Landscape:* Intermontane basins
*Landform:* Alluvial flats
*Parent material:* Sandy alluvium derived from granite, gneiss, and mica schist
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 15 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Somewhat excessively drained
*Slowest permeability:* 6.0 to 20 in./hr. (rapid)
*Available water capacity:* About 2.9 inches (very low)
*Shrink-swell potential:* About 0.2 percent (low)
*Calcium carbonate maximum:* About 15 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Valley Sand
*Potential native vegetation:* Indian ricegrass, Greene's rabbitbrush, blue grama, rubber rabbitbrush, buckwheat, mustard, prairie sagewort, sand dropseed, scarlet globemallow
*Land capability subclass (irrigated):* 4e
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
A1—0 to 2 inches; loamy sand
A2—2 to 7 inches; loamy sand
Bw1—7 to 14 inches; gravelly loamy sand
Bw2—14 to 32 inches; gravelly loamy sand
Bk1—32 to 37 inches; gravelly loamy sand
Bk2—37 to 80 inches; gravelly sand

**Minor Components**
Cososa and similar soils
*Composition:* About 10 percent
*Landscape:* Intermontane basins
*Landform:* Outwash plains
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Sandy Bench

McGinty and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Alluvial flats
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear

*Drainage class:* Well drained
*Ecological site:* Sandy Bench

## CuF—Comodore-Uracca-Rock outcrop complex, 5 to 65 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A
*Elevation:* 8,100 to 10,500 feet (2,469 to 3,200 meters)
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

### Map Unit Composition

Comodore and similar soils: 50 percent
Uracca and similar soils: 20 percent
Rock outcrop: 20 percent
Minor components: 10 percent

### Component Descriptions

**Comodore soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Parent material:* Colluvium over residuum derived from granite, gneiss, and mica schist
*Slope:* 20 to 65 percent
*Aspect:* South to southwest
*Shape (down/across):* Convex/linear
*Surface fragments:* About 50 percent subrounded gravel and 25 percent subrounded cobbles
*Depth class:* Shallow
*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 0.9 inches (very low)
*Shrink-swell potential:* About 0.8 percent (low)
*Calcium carbonate maximum:* About 2 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Pinyon-Juniper
*Potential native vegetation:*
Common trees: twoneedle pinyon, Rocky Mountain juniper
Other plants: blue grama, mountain mahogany, slimstem muhly, wax currant, scarlet gilia, sulphur-flower buckwheat
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
A—0 to 5 inches; very cobbly loam
Bw—5 to 16 inches; extremely cobbly loam
R—16 to 80 inches; bedrock

**Uracca soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Parent material:* Colluvium over residuum derived from granite, gneiss, and mica schist
*Slope:* 5 to 65 percent
*Aspect:* South to west
*Shape (down/across):* Convex/linear
*Surface fragments:* About 50 percent subrounded gravel, about 20 percent subrounded cobbles
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 2.7 inches (very low)
*Shrink-swell potential:* About 0.6 percent (low)
*Calcium carbonate maximum:* About 14 percent
*Gypsum maximum:* None
*Salinity maximum:* About 0 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Foothill Loam
*Potential native vegetation:* western wheatgrass, needleandthread, blue grama, fourwing saltbush, littleseed ricegrass, sedge, rubber rabbitbrush
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
A—0 to 4 inches; very cobbly sandy loam
Bt—4 to 11 inches; very cobbly sandy clay loam
Btk—11 to 18 inches; very cobbly sandy clay loam
Bk1—18 to 24 inches; extremely cobbly sandy loam
Bk2—24 to 52 inches; extremely cobbly sandy loam
Bk3—52 to 80 inches; extremely cobbly sandy loam

**Rock outcrop**
*Description:* Rock outcrop consists of areas of exposed granite, gneiss, and/or mica schist.
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Parent material:* Granite, gneiss, and mica schist
*Slope:* 45 to 65 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/convex
*Depth to restrictive feature:* 0 inches to bedrock, lithic
*Land capability subclass (nonirrigated):* 8s

**Minor Components**
Morval and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Slope:* 3 to 9 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear

*Drainage class:* Well drained
*Ecological site:* Loamy Foothills

Seitz and similar soils
*Composition:* About 3 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank, mountaintop
*Slope:* 10 to 65 percent
*Aspect:* West to northwest
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Mixed Conifer

Tolvar and similar soils
*Composition:* About 2 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank, mountaintop
*Slope:* 10 to 65 percent
*Aspect:* Southeast
*Shape (down/across):* Linear/convex
*Drainage class:* Well drained
*Ecological site:* Aspen Woodland

## DAM—Dam

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Mean annual precipitation:* 6 to 12 inches (152 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

### Map Unit Composition

Dam: 100 percent
Minor components: —

### Component Descriptions

**Dam**
*Description:* These delineations are small earthen dams constructed from soil material that are used to contain surface water runoff. Typically, they impound less than 10 acres of surface water and are built from soils in the surrounding area.
*Aspect:* All aspects
*Land capability subclass (nonirrigated):* 8s

## DrD—Durreo gravelly fine sandy loam, 1 to 9 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51

*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

**Map Unit Composition**

Durreo and similar soils: 85 percent
Minor components: 15 percent

**Component Descriptions**

**Durreo soils**
*Landscape:* Intermontane basins
*Landform:* Volcanic hills
*Position on landform:* Summits, backslopes
*Position on landform:* Side slope
*Parent material:* Slope alluvium derived from basalt, andesite, and rhyolite
*Slope:* 1 to 9 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Surface fragments:* About 25 percent subangular gravel, about 5 percent subangular cobbles
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Available water capacity:* About 4.3 inches (low)
*Shrink-swell potential:* About 0.5 percent (low)
*Calcium carbonate maximum:* About 45 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 1 (slightly sodic)
*Ecological site:* Limy Bench
*Potential native vegetation:* winterfat, Indian ricegrass, blue grama, bottlebrush squirreltail, fourwing saltbush, rabbitbrush
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
A—0 to 6 inches; gravelly fine sandy loam
Bk1—6 to 14 inches; very cobbly fine sandy loam
Bk2—14 to 34 inches; very cobbly fine sandy loam
Bk3—34 to 80 inches; very cobbly sandy loam

**Minor Components**
Cososa and similar soils
*Composition:* About 10 percent
*Landscape:* Intermontane basins
*Landform:* Outwash plains
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Sandy Bench

McGinty and similar soils
*Composition:* About 4 percent
*Landscape:* Intermontane basins
*Landform:* Alluvial fans
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Sandy Bench

Rock outcrop
*Composition:* About 1 percent
*Landscape:* Intermontane basins
*Landform:* Scarps on mesas
*Slope:* 1 to 9 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/convex
*Depth to restrictive feature:* 0 inches to bedrock, lithic

## EaA—Eastdale loam, 0 to 1 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

### Map Unit Composition

Eastdale and similar soils: 85 percent
Minor components: 15 percent

### Component Descriptions

**Eastdale soils**
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Parent material:* Fine-loamy alluvium derived from granite, gneiss, and mica schist
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 0 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Poorly drained
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)
*Available water capacity:* About 9.9 inches (high)
*Shrink-swell potential:* About 3.2 percent (moderate)
*Flooding hazard:* Occasional
*Ponding hazard:* Occasional
*Calcium carbonate maximum:* About 15 percent
*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)
*Sodium adsorption ratio maximum:* About 13 (moderately sodic)
*Ecological site:* Salt Meadow
*Potential native vegetation:* alkali sacaton, alkali cordgrass, western wheatgrass, Baltic rush, inland saltgrass, sedge, greasewood, rubber rabbitbrush
*Land capability subclass (irrigated):* 6w
*Land capability subclass (nonirrigated):* 6w

*Typical Profile:*
A—0 to 5 inches; loam
By—5 to 15 inches; clay loam
Bkg1—15 to 30 inches; clay loam
Bkg2—30 to 42 inches; loam
Cg1—42 to 59 inches; loam
Cg2—59 to 80 inches; sandy loam

**Minor Components**

Vastine and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification
*Drainage class:* Poorly drained
*Flooding hazard:* Occasional
*Ecological site:* Wet Meadow

Gerrard and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 12 to 20 inches to strongly contrasting textural stratification
*Drainage class:* Poorly drained
*Flooding hazard:* Occasional
*Ecological site:* Wet Meadow

Mesita and similar soils
*Composition:* About 3 percent
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Moderately well drained

*Flooding hazard:* Occasional
*Ecological site:* Salt Flats

Ventero and similar soils
*Composition:* About 2 percent
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Very poorly drained
*Flooding hazard:* Occasional
*Ecological site:* Wet Meadow

## FLB—Fluvents, nearly level

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,000 to 8,000 feet (2,134 to 2,438 meters)
*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)
*Mean annual air temperature:* 48 to 50 degrees F. (8.9 to 10.0 degrees C.)
*Frost-free period:* 125 to 135 days

### Map Unit Composition

Fluvents and similar soils: 80 percent
Minor components:

### Component Descriptions

**Fluvents soils**
*Landscape:* Valleys
*Landform:* Flood plains
*Position on landform:* Talf
*Parent material:* Alluvium derived from igneous and metamorphic rock
*Slope:* 0 to 2 percent
*Aspect:* North to west
*Shape (down/across):* Linear/linear
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 6.0 to 20 in./hr. (rapid)
*Available water capacity:* About 1.8 inches (very low)
*Shrink-swell potential:* About 1.5 percent (low)
*Flooding hazard:* Frequent
*Seasonal high water table depth:* About 0 to 24 inches
*Calcium carbonate maximum:* None
*Gypsum maximum:* None
*Salinity maximum:* About 4 mmhos/cm (very slightly saline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Mountain Valley
*Potential native vegetation:* mountain muhly, Arizona fescue, mountain brome, western wheatgrass, Gambel oak, prairie sagewort, vetch, yarrow
*Land capability subclass (nonirrigated):* 8w

*Typical Profile:*
A—0 to 6 inches; very gravelly sand
C—6 to 60 inches; stratified extremely gravelly coarse sand to gravelly sand

**Minor Components**
Inclusion and similar soils
*Composition:* About
*Slope:* 0 to 3 percent
*Drainage class:* Poorly drained
*Flooding hazard:* Frequent
*Ecological site:* Meadow

## FtA—Fuertes sandy loam, 0 to 2 percent slopes

**Map Unit Setting**

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

**Map Unit Composition**

Fuertes and similar soils: 85 percent
Minor components: 15 percent

**Component Descriptions**

**Fuertes soils**
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread
*Parent material:* Fine-loamy alluvium derived from granite, gneiss, and mica schist
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 15 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Somewhat poorly drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 8.8 inches (moderate)
*Shrink-swell potential:* About 2.3 percent (low)
*Seasonal high water table depth:* About 18 to 42 inches
*Calcium carbonate maximum:* About 15 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 2 (slightly sodic)
*Ecological site:* Wet Meadow
*Potential native vegetation:* tufted hairgrass, Nebraska sedge, slender wheatgrass, western wheatgrass, bluejoint, reedgrass, Baltic rush, sedge
*Land capability subclass (irrigated):* 4w
*Land capability subclass (nonirrigated):* 6w

*Typical Profile:*
A—0 to 3 inches; sandy loam
Bt1—3 to 7 inches; loam
Btk—7 to 22 inches; loam
Bt2—22 to 40 inches; loam
Bt3—40 to 54 inches; loam
2C—54 to 80 inches; very gravelly sand

**Minor Components**
Eastdale and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Poorly drained
*Flooding hazard:* Occasional
*Ecological site:* Salt Meadow

Kibin and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification
*Drainage class:* Well drained
*Ecological site:* Valley Bench

Stunner and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Outwash fans
*Slope:* 1 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Valley Bench

## GmE—Aquic Dystrocryepts

**Map Unit Setting**

*Major Land Resource Area:* 48A
*Elevation:* 10,500 to 13,000 feet (3,200 to 3,962 meters)
*Mean annual precipitation:* 30 to 40 inches (762 to 1,016 millimeters)
*Mean annual air temperature:* 30 to 36 degrees F. (-1.0 to 2.0 degrees C.)
*Frost-free period:* 10 to 40 days
*Note:* Located in cirque basins in the Sangre de Cristo mountains.

## Map Unit Composition

Aquic Dystrocryepts and similar soils: 90 percent
Minor components: 10 percent

## Component Descriptions

**Aquic Dystrocryepts soils**
*Landscape:* Mountains
*Landform:* Cirques
*Position on landform:* Mountaintop
*Parent material:* Colluvium and till derived from monzonite and diorite
*Slope:* 5 to 30 percent
*Aspect:* North to south
*Shape (down/across):* Concave/concave
*Surface fragments:* About 1 percent subrounded stones, about 20 percent subrounded cobbles, about 20 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Poorly drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 5.4 inches (low)
*Shrink-swell potential:* About 1.5 percent (low)
*Seasonal high water table depth:* About 24 to 36 inches
*Calcium carbonate maximum:* None
*Gypsum maximum:* None
*Salinity maximum:* About 0 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Alpine Meadow
*Potential native vegetation:* willow, kobresia, tufted hairgrass, arctic bluegrass, alpine clover, alpine timothy, sedge, cinquefoil, Parry's clover, shrubby cinquefoil
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
A1—0 to 11 inches; cobbly loam
A2—11 to 20 inches; gravelly loam
Bw1—20 to 34 inches; gravelly loam
Bw2—34 to 60 inches; very gravelly loam

**Minor Components**
Moran and similar soils
*Composition:* About 10 percent
*Landscape:* Mountains
*Landform:* Mountains
*Position on landform:* Mountaintop
*Slope:* 5 to 30 percent
*Aspect:* North to south
*Shape (down/across):* Convex/linear
*Drainage class:* Somewhat excessively drained
*Ecological site:* Alpine Slopes
*Distinguishing characteristics:* These soils do not have a water table.

## Major Uses

Grazing land, wildlife habitat

## Gn—Angostura very stony loam, 20 to 65 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A
*Elevation:* 9,000 to 10,800 feet (2,743 to 3,292 meters)
*Mean annual precipitation:* 25 to 35 inches (635 to 889 millimeters)
*Mean annual air temperature:* 37 to 40 degrees F. (3.0 to 4.5 degrees C.)
*Frost-free period:* 40 to 70 days

### Map Unit Composition

Angostura and similar soils: 90 percent
Minor components: 10 percent

### Component Descriptions

**Angostura soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Parent material:* Colluvium and till derived from diorite and monzonite
*Slope:* 20 to 65 percent
*Aspect:* North to south
*Shape (down/across):* Linear/linear
*Surface fragments:* About 15 percent subrounded stones
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 5.5 inches (low)
*Shrink-swell potential:* About 1.4 percent (low)
*Calcium carbonate maximum:* None
*Gypsum maximum:* None
*Salinity maximum:* About 0 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Engelmann spruce-Subalpine fir
Subalpine fir-Engelmann spruce/grouse whortleberry (ABLA-PIEN/VASC)
*Potential native vegetation:*
Common trees: subalpine fir, Engelmann spruce, Rocky Mountain Douglas fir
Other plants: grouse whortleberry, bluegrass, nodding brome, Arizona fescue, common juniper, Oregongrape, russet buffaloberry, Thurber's fescue, Woods' rose
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
Oi—0 to 1 inch; slightly decomposed plant material
E—1 inch to 12 inches; very stony loam
B/E—12 to 24 inches; very cobbly loam
Bt1—24 to 46 inches; very cobbly clay loam
Bt2—46 to 61 inches; very cobbly clay loam
BC—61 to 72 inches; very gravelly loam

**Minor Components**
Fallriver and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains

*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Slope:* 20 to 65 percent
*Aspect:* North to south
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Engelmann spruce-Subalpine fir
*Distinguishing characteristics:* These soils average more than 50 percent sand and are very strongly acid.

Leadville and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Slope:* 20 to 65 percent
*Aspect:* North to south
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Engelmann spruce-Subalpine fir
*Distinguishing characteristics:* These soils average more than 45 percent sand and formed from red sandstone.

## GP—Pits, gravel

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Mean annual precipitation:* 6 to 12 inches (150 to 300 millimeters)
*Mean annual air temperature:* 39 to 46 degrees F. (4.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

### Map Unit Composition

Pits, gravel: 100 percent
Minor components: —-

### Component Descriptions

**Pits, gravel**
*Landscape:* Intermontane basins
*Landform:* Outwash plains
*Parent material:* Alluvium over outwash
*Aspect:* South to southwest
*Shape (down/across):* Concave/linear
*Land capability subclass (nonirrigated):* 8s

## GpA—Graypoint sandy loam, 0 to 2 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)

*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

**Map Unit Composition**

Graypoint and similar soils: 85 percent
Minor components: 15 percent

**Component Descriptions**

**Graypoint soils**
*Landscape:* Intermontane basins
*Landform:* Alluvial flats
*Parent material:* Alluvium derived from granite, gneiss, and mica schist
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 10 percent subrounded gravel
*Depth class:* Very deep
*Depth to restrictive feature:* 10 to 20 inches to strongly contrasting textural stratification
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 2.9 inches (very low)
*Shrink-swell potential:* About 0.6 percent (low)
*Calcium carbonate maximum:* About 10 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)



**Figure 3.—Typical landscape of Graypoint sandy loam, 0 to 2 percent slopes.**

*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Mountain Outwash
*Potential native vegetation:* blue grama, Indian ricegrass, western wheatgrass, winterfat, bottlebrush squirreltail, fourwing saltbush, needleandthread, rabbitbrush
*Land capability subclass (irrigated):* 4s
*Land capability subclass (nonirrigated):* 6s

*Typical Profile:*
A—0 to 5 inches; sandy loam
Bt—5 to 12 inches; loam
2Btk—12 to 16 inches; very gravelly loam
2Bk1—16 to 21 inches; extremely gravelly loamy sand
2Bk2—21 to 36 inches; extremely gravelly sand
2C—36 to 80 inches; extremely gravelly sand

**Minor Components**
Cososa and similar soils
*Composition:* About 10 percent
*Landscape:* Intermontane basins
*Landform:* Outwash plains
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Sandy Bench

McGinty and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Alluvial flats
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Sandy Bench

## GrA—Grayco sandy loam, 0 to 2 percent slopes

**Map Unit Setting**

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

**Map Unit Composition**

Grayco and similar soils: 85 percent
Minor components: 15 percent

**Component Descriptions**

**Grayco soils**
*Landscape:* Intermontane basins
*Landform:* Outwash plains



**Figure 4.—Typical landscape of Grayco sandy loam, 0 to 2 percent slopes, sown with oats. Ute Mountain is in the background.**

*Parent material:* Outwash derived from granite, gneiss, and mica schist
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 25 percent subrounded gravel
*Depth class:* Very deep
*Depth to restrictive feature:* 10 to 60 inches to strongly contrasting textural stratification
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 3.6 inches (low)
*Shrink-swell potential:* About 0.7 percent (low)
*Calcium carbonate maximum:* About 10 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Valley Bench
*Potential native vegetation:* western wheatgrass, blue grama, Wyoming big sagebrush, needleandthread, Indian ricegrass, fourwing saltbush, sand dropseed, winterfat
*Land capability subclass (irrigated):* 4s
*Land capability subclass (nonirrigated):* 6s

*Typical Profile:*
A—0 to 4 inches; sandy loam
Bt—4 to 14 inches; loam
Bk—14 to 18 inches; very gravelly sandy loam
2Bk1—18 to 24 inches; extremely gravelly loamy sand

2Bk2—24 to 43 inches; extremely gravelly sand
2C—43 to 80 inches; extremely gravelly sand

**Minor Components**

Kibin and similar soils
*Composition:* About 10 percent
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification
*Drainage class:* Well drained
*Ecological site:* Valley Bench

Fuertes and similar soils
*Composition:* About 3 percent
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Somewhat poorly drained
*Ecological site:* Wet Meadow

Trinchera and similar soils
*Composition:* About 2 percent
*Landscape:* Intermontane basins
*Landform:* Outwash plains
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

## GrC—Grayco sandy loam, 2 to 6 percent slopes

**Map Unit Setting**

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

**Map Unit Composition**

Grayco and similar soils: 85 percent
Minor components: 15 percent

## Component Descriptions

**Grayco soils**
*Landscape:* Intermontane basins
*Landform:* Outwash plains, outwash terraces
*Parent material:* Outwash derived from granite, gneiss, and mica schist
*Slope:* 2 to 6 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 25 percent subrounded gravel
*Depth class:* Very deep
*Depth to restrictive feature:* 10 to 60 inches to strongly contrasting textural stratification
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 3.6 inches (low)
*Shrink-swell potential:* About 0.8 percent (low)
*Calcium carbonate maximum:* About 10 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Valley Bench
*Potential native vegetation:* western wheatgrass, blue grama, Wyoming big sagebrush, needleandthread, Indian ricegrass, fourwing saltbush, sand dropseed, winterfat
*Land capability subclass (irrigated):* 4s
*Land capability subclass (nonirrigated):* 6s

*Typical Profile:*
A—0 to 4 inches; sandy loam
Bt—4 to 14 inches; loam
Bk—14 to 18 inches; very gravelly sandy loam
2Bk1—18 to 24 inches; extremely gravelly loamy sand
2Bk2—24 to 43 inches; extremely gravelly sand
2C—43 to 80 inches; extremely gravelly sand

**Minor Components**
Kibin and similar soils
*Composition:* About 10 percent
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread
*Slope:* 3 to 5 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification
*Drainage class:* Well drained
*Ecological site:* Valley Bench

Fuertes and similar soils
*Composition:* About 3 percent
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread

*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Somewhat poorly drained
*Ecological site:* Wet Meadow

Trinchera and similar soils
*Composition:* About 2 percent
*Landscape:* Intermontane basins
*Landform:* Outwash fans
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

## Ho—Hooper, wind hummocky-Hooper complex, 0 to 2 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

### Map Unit Composition

Hooper, loamy sand and similar soils: 70 percent
Hooper, clay loam and similar soils: 20 percent
Minor components: 10 percent

### Component Descriptions

**Hooper, loamy sand soils**
*Landscape:* Intermontane basins
*Landform:* Shrub-coppice dunes on flood plains
*Parent material:* Eolian sands over alluvium derived from mixed sources
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Concave/concave, convex
*Surface fragments:* About 5 percent subrounded gravel
*Depth class:* Very deep
*Depth to restrictive feature:* 20 to 60 inches to strongly contrasting textural stratification
*Drainage class:* Moderately well drained
*Slowest permeability:* .06 to 0.2 in./hr. (slow)
*Available water capacity:* About 5.6 inches (low)
*Shrink-swell potential:* About 1.8 percent (low)
*Seasonal high water table depth:* About 48 to 72 inches
*Calcium carbonate maximum:* About 30 percent
*Gypsum maximum:* About 5 percent
*Salinity maximum:* About 4 mmhos/cm (very slightly saline)
*Sodium adsorption ratio maximum:* About 25 (moderately sodic)

*Ecological site:* Salt Flats
*Potential native vegetation:* alkali sacaton, alkali cordgrass, blue grama, greasewood, rubber rabbitbrush, western wheatgrass, fourwing saltbush
*Land capability subclass (irrigated):* 6e
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
A—0 to 5 inches; loamy sand
Btn—5 to 10 inches; clay
Btkn1—10 to 18 inches; clay
Btkn2—18 to 23 inches; sandy clay loam
2C1—23 to 37 inches; loamy sand
2C2—37 to 50 inches; loamy sand
2C3—50 to 80 inches; sand

**Hooper, clay loam soils**
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Parent material:* Alluvium derived from mixed sources
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Concave/concave
*Surface fragments:* About 0 percent subrounded gravel
*Depth class:* Very deep
*Depth to restrictive feature:* 20 to 60 inches to strongly contrasting textural stratification
*Drainage class:* Moderately well drained
*Slowest permeability:* .06 to 0.2 in./hr. (slow)
*Available water capacity:* About 7.6 inches (moderate)
*Shrink-swell potential:* About 2.9 percent (low)
*Ponding hazard:* Occasional
*Seasonal high water table depth:* About 48 to 72 inches
*Calcium carbonate maximum:* About 30 percent
*Gypsum maximum:* About 5 percent
*Salinity maximum:* About 4 mmhos/cm (very slightly saline)
*Sodium adsorption ratio maximum:* About 25 (moderately sodic)
*Ecological site:* Salt Flats
*Potential native vegetation:* alkali sacaton, alkali cordgrass, blue grama, greasewood, rubber rabbitbrush, western wheatgrass, fourwing saltbush
*Land capability subclass (irrigated):* 6s
*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*
A—0 to 4 inches; clay loam
Btn—4 to 12 inches; clay
Btkn1—12 to 26 inches; clay loam
Btkn2—26 to 33 inches; clay loam
Bkn—33 to 37 inches; sandy clay loam
2C1—37 to 50 inches; sand
2C2—50 to 72 inches; sand

**Minor Components**
Cososa and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Outwash plains
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Sandy Bench

Mosca and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Alluvial flats
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 4 to 7 inches to natric
*Drainage class:* Well drained
*Ecological site:* Valley Sand

## Hp—Hooper-Hooper, wind hummocky complex, 0 to 2 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

### Map Unit Composition

Hooper, clay loam and similar soils: 65 percent
Hooper, loamy sand and similar soils: 30 percent
Minor components: 5 percent

### Component Descriptions

**Hooper, clay loam soils**
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Parent material:* Alluvium derived from mixed sources
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Concave/concave
*Surface fragments:* About 0 percent subrounded gravel
*Depth class:* Very deep



**Figure 5.—Typical landscape and vegetation of Hooper-Hooper, wind hummocky complex, 0 to 2 percent slopes.**

*Depth to restrictive feature:* 20 to 60 inches to strongly contrasting textural stratification
*Drainage class:* Moderately well drained
*Slowest permeability:* .06 to 0.2 in./hr. (slow)
*Available water capacity:* About 7.6 inches (moderate)
*Shrink-swell potential:* About 2.9 percent (low)
*Ponding hazard:* Occasional
*Seasonal high water table depth:* About 48 to 72 inches
*Calcium carbonate maximum:* About 30 percent
*Gypsum maximum:* About 5 percent
*Salinity maximum:* About 4 mmhos/cm (very slightly saline)
*Sodium adsorption ratio maximum:* About 25 (moderately sodic)
*Ecological site:* Salt Flats
*Potential native vegetation:* alkali sacaton, alkali cordgrass, blue grama, greasewood, rubber rabbitbrush, western wheatgrass, fourwing saltbush
*Land capability subclass (irrigated):* 6s
*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*
A—0 to 4 inches; clay loam
Btn—4 to 12 inches; clay
Btkn1—12 to 26 inches; clay loam
Btkn2—26 to 33 inches; clay loam
Bkn—33 to 37 inches; sandy clay loam
2C1—37 to 50 inches; sand
2C2—50 to 72 inches; sand

**Hooper, loamy sand soils**
*Landscape:* Intermontane basins
*Landform:* Shrub-coppice dunes on flood plains
*Parent material:* Eolian sands over alluvium derived from mixed sources
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Concave/concave, convex
*Surface fragments:* About 5 percent subrounded gravel
*Depth class:* Very deep
*Depth to restrictive feature:* 20 to 60 inches to strongly contrasting textural stratification
*Drainage class:* Moderately well drained
*Slowest permeability:* .06 to 0.2 in./hr. (slow)
*Available water capacity:* About 5.6 inches (low)
*Shrink-swell potential:* About 1.8 percent (low)
*Seasonal high water table depth:* About 48 to 72 inches
*Calcium carbonate maximum:* About 30 percent
*Gypsum maximum:* About 5 percent
*Salinity maximum:* About 4 mmhos/cm (very slightly saline)
*Sodium adsorption ratio maximum:* About 25 (moderately sodic)
*Ecological site:* Salt Flats
*Potential native vegetation:* alkali sacaton, alkali cordgrass, blue grama, greasewood, rubber rabbitbrush, western wheatgrass, fourwing saltbush
*Land capability subclass (irrigated):* 6e
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
A—0 to 5 inches; loamy sand
Btn—5 to 10 inches; clay
Btkn1—10 to 18 inches; clay
Btkn2—18 to 23 inches; sandy clay loam
2C1—23 to 37 inches; loamy sand
2C2—37 to 50 inches; loamy sand
2C3—50 to 80 inches; sand

**Minor Components**
Cososa and similar soils
*Composition:* About 3 percent
*Landscape:* Intermontane basins
*Landform:* Outwash plains
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Sandy Bench

Mosca and similar soils
*Composition:* About 2 percent
*Landscape:* Intermontane basins
*Landform:* Alluvial flats
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 4 to 7 inches to the natric horizon

*Drainage class:* Well drained
*Ecological site:* Valley Sand

## KbA—Kibin fine sandy loam, 0 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

### Map Unit Composition

Kibin and similar soils: 85 percent
Minor components: 15 percent

### Component Descriptions

**Kibin soils**
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread
*Parent material:* Fine-loamy alluvium over outwash derived from granite, gneiss, and mica schist
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 3 percent coarse subrounded gravel, about 7 percent medium subrounded gravel, about 15 percent fine subrounded gravel
*Depth class:* Very deep
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification
*Drainage class:* Well drained
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)
*Available water capacity:* About 6.5 inches (moderate)
*Shrink-swell potential:* About 2.2 percent (low)
*Calcium carbonate maximum:* About 3 percent
*Gypsum maximum:* None
*Salinity maximum:* About 4 mmhos/cm (very slightly saline)
*Sodium adsorption ratio maximum:* About 1 (slightly sodic)
*Ecological site:* Valley Bench
*Potential native vegetation:* western wheatgrass, blue grama, Wyoming big sagebrush, needleandthread, Indian ricegrass, fourwing saltbush, sand dropseed, winterfat
*Land capability subclass (irrigated):* 3e
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
Ap1—0 to 1 inch; fine sandy loam
Ap2—1 inch to 3 inches; sandy clay loam
Ap3—3 to 9 inches; sandy clay loam
Bt—9 to 14 inches; sandy clay loam
Btb—14 to 19 inches; loam

Btkb1—19 to 27 inches; loam
Btkb2—27 to 37 inches; clay loam
2Btk—37 to 52 inches; extremely gravelly loamy coarse sand
2Bk—52 to 80 inches; extremely gravelly coarse sand

**Minor Components**

Fuertes and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Somewhat poorly drained
*Ecological site:* Wet Meadow

Grayco and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Outwash plains
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 10 to 60 inches to strongly contrasting textural stratification
*Drainage class:* Well drained
*Ecological site:* Valley Bench

Stunner and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Outwash fans
*Slope:* 1 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Valley Bench

## KbC—Kibin fine sandy loam, 3 to 5 percent slopes

**Map Unit Setting**

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

**Map Unit Composition**

Kibin and similar soils: 85 percent
Minor components: 15 percent

## Component Descriptions

**Kibin soils**
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread
*Parent material:* Fine-loamy alluvium over outwash derived from granite, gneiss, and mica schist
*Slope:* 3 to 5 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 3 percent coarse subrounded gravel, about 7 percent medium subrounded gravel, about 15 percent fine subrounded gravel
*Depth class:* Very deep
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification
*Drainage class:* Well drained
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)
*Available water capacity:* About 6.5 inches (moderate)
*Shrink-swell potential:* About 2.2 percent (low)
*Calcium carbonate maximum:* About 3 percent
*Gypsum maximum:* None
*Salinity maximum:* About 4 mmhos/cm (very slightly saline)
*Sodium adsorption ratio maximum:* About 1 (slightly sodic)
*Ecological site:* Valley Bench
*Potential native vegetation:* western wheatgrass, blue grama, Wyoming big sagebrush, needleandthread, Indian ricegrass, fourwing saltbush, sand dropseed, winterfat
*Land capability subclass (irrigated):* 3e
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
Ap1—0 to 1 inch; fine sandy loam
Ap2—1 inch to 3 inches; sandy clay loam
Ap3—3 to 9 inches; sandy clay loam
Bt—9 to 14 inches; sandy clay loam
Btb—14 to 19 inches; loam
Btkb1—19 to 27 inches; loam
Btkb2—27 to 37 inches; clay loam
2Btk—37 to 52 inches; extremely gravelly loamy coarse sand
2Bk—52 to 80 inches; extremely gravelly coarse sand

**Minor Components**
Stunner and similar soils
*Composition:* About 10 percent
*Landscape:* Intermontane basins
*Landform:* Outwash fans
*Slope:* 3 to 6 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Valley Bench

Fuertes and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Somewhat poorly drained
*Ecological site:* Wet Meadow

## LbF—Lambe-Woodhall complex, 5 to 65 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A
*Elevation:* 8,900 to 11,500 feet (2,713 to 3,505 meters)
*Mean annual precipitation:* 16 to 25 inches (406 to 635 millimeters)
*Mean annual air temperature:* 33 to 41 degrees F. (0.6 to 5.0 degrees C.)
*Frost-free period:* 40 to 70 days

### Map Unit Composition

Lambe and similar soils: 60 percent
Woodhall and similar soils: 30 percent
Minor components: 10 percent

### Component Descriptions

**Lambe soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Parent material:* Gravelly alluvium over colluvium derived from granite, gneiss, and mica schist
*Slope:* 5 to 65 percent
*Aspect:* Southwest
*Shape (down/across):* Linear/convex
*Surface fragments:* About 30 percent subangular gravel, about 10 percent subangular cobbles, about 1 percent subangular stones
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 3.7 inches (low)
*Shrink-swell potential:* About 1.0 percent (low)
*Calcium carbonate maximum:* About 10 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 1 (slightly sodic)
*Ecological site:* Loamy Park
*Potential native vegetation:* Junegrass, bluegrass, bottlebrush squirreltail, fescue, needlegrass
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
A—0 to 3 inches; gravelly sandy loam
Bt1—3 to 8 inches; very gravelly sandy clay loam
Bt2—8 to 12 inches; very gravelly sandy clay loam
Bt3—12 to 22 inches; very gravelly sandy clay loam
Bt4—22 to 38 inches; extremely gravelly sandy clay loam
Bt5—38 to 65 inches; extremely gravelly sandy clay loam
Bk—65 to 80 inches; extremely gravelly sandy loam

**Woodhall soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank, mountaintop
*Parent material:* Slope alluvium over residuum weathered from sandstone
*Slope:* 5 to 65 percent
*Aspect:* Southwest
*Shape (down/across):* Linear/linear
*Surface fragments:* About 20 percent subangular gravel, about 2 percent subangular cobbles
*Depth class:* Moderately deep
*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 1.6 inches (very low)
*Shrink-swell potential:* About 0.2 percent (low)
*Calcium carbonate maximum:* About 2 percent
*Gypsum maximum:* None
*Salinity maximum:* About 1 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (slightly sodic)
*Ecological site:* Subalpine Loam
*Potential native vegetation:* Thurber's fescue, Parry's oatgrass, mountain big sagebrush, Columbia needlegrass, western wheatgrass, silver sagebrush, mountain snowberry, aspen peavine, geranium
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
A—0 to 4 inches; channery silt loam
Bt1—4 to 11 inches; very channery loam
Bt2—11 to 23 inches; very channery loam
C—23 to 32 inches; extremely channery fine sandy loam
R—32 to 32 inches; bedrock

**Minor Components**
Rock outcrop
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Slope:* 45 to 90 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/convex
*Depth to restrictive feature:* 0 inches to bedrock, lithic

Tolvar and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank, mountaintop
*Slope:* 10 to 65 percent
*Aspect:* Southeast
*Shape (down/across):* Linear/convex
*Drainage class:* Well drained
*Ecological site:* Aspen Woodland

## LeF—Fallriver-Rock outcrop complex, 10 to 65 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A
*Elevation:* 9,000 to 12,100 feet (2,743 to 3,688 meters)
*Mean annual precipitation:* 25 to 35 inches (635 to 889 millimeters)
*Mean annual air temperature:* 30 to 38 degrees F. (-1.1 to 3.3 degrees C.)
*Frost-free period:* 35 to 50 days

### Map Unit Composition

Fallriver and similar soils: 65 percent
Rock outcrop: 20 percent
Minor components: 15 percent

### Component Descriptions

**Fallriver soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountaintop, mountainflank
*Parent material:* Colluvium derived from granite, gneiss, and mica schist
*Slope:* 10 to 65 percent
*Aspect:* North
*Shape (down/across):* Linear/linear
*Surface fragments:* About 10 percent subangular cobbles, about 10 percent subangular gravel, about 0 percent subangular stones
*Depth class:* Very deep
*Drainage class:* Somewhat excessively drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Available water capacity:* About 3.6 inches (low)
*Shrink-swell potential:* About 0.3 percent (low)
*Calcium carbonate maximum:* About 1 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 1 (slightly sodic)
*Ecological site:* Pinus engelmannii-Abies lasiocarpa/Vaccinium
*Potential native vegetation:*
Common trees: subalpine fir, Engelmann spruce
Other plants: elk sedge, grouse whortleberry
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
Oe—0 to 1 inch; moderately decomposed plant material
E—1 inch to 8 inches; very gravelly sandy loam
Bs1—8 to 18 inches; very gravelly sandy loam
Bs2—18 to 37 inches; very gravelly sandy loam
Bs3—37 to 56 inches; very gravelly sandy loam
C—56 to 80 inches; extremely gravelly loamy sand

**Rock outcrop**
*Description:* Rock outcrop consists of areas of exposed granite, gneiss, and/or mica schist.
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Parent material:* Granite, gneiss, and mica schist
*Slope:* 45 to 65 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/convex
*Depth to restrictive feature:* 0 inches to bedrock, lithic
*Land capability subclass (nonirrigated):* 8s

**Minor Components**
Lambe and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainbase, mountaintop
*Slope:* 5 to 65 percent
*Aspect:* Southwest
*Shape (down/across):* Linear/convex
*Drainage class:* Well drained
*Ecological site:* Loamy Park

Woodhall and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Slope:* 5 to 65 percent
*Aspect:* Southwest
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic
*Drainage class:* Well drained
*Ecological site:* Loamy Park

Mirror and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank (upper third)
*Slope:* 40 to 60 percent
*Aspect:* North to south
*Shape (down/across):* Linear/convex

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic
*Drainage class:* Well drained
*Ecological site:* Alpine Slopes

## LH—Leadville-Howlett complex, 5 to 40 percent slopes, stony

### Map Unit Setting

*Major Land Resource Area:* 48A
*Elevation:* 8,500 to 10,800 feet (2,591 to 3,292 meters)
*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)
*Mean annual air temperature:* 37 to 42 degrees F. (3.0 to 5.5 degrees C.)
*Frost-free period:* 40 to 70 days
*Note:* Located on mountain slopes of the Sangre de Cristo mountains and the Spanish Peaks.

### Map Unit Composition

Leadville and similar soils: 60 percent
Howlett and similar soils: 30 percent
Minor components: 10 percent

### Component Descriptions

**Leadville soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Parent material:* Colluvium derived from sandstone
*Slope:* 15 to 40 percent
*Aspect:* North to south
*Shape (down/across):* Linear/linear
*Surface fragments:* About 2 percent subrounded stones
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 5.2 inches (low)
*Shrink-swell potential:* About 2.0 percent (low)
*Calcium carbonate maximum:* None
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-Symphoricarpos albus/Festuca arizonica-Carex geyeri
*Potential native vegetation:*
Common trees: subalpine fir, Engelmann spruce, Rocky Mountain Douglas fir
Other plants: Arizona fescue, boxleaf myrtle, common juniper, elk sedge, mountain brome, Woods' rose, bluegrass, grouse whortleberry, muttongrass, russet buffaloberry
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
Oi—0 to 2 inches; slightly decomposed plant material
E—2 to 16 inches; cobbly sandy loam

B/E—16 to 22 inches; very cobbly sandy loam
Bt—22 to 48 inches; very cobbly sandy clay loam
BCt—48 to 65 inches; very cobbly sandy clay loam

**Howlett soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Parent material:* Slope alluvium and/or colluvium derived from sandstone
*Slope:* 5 to 40 percent
*Aspect:* North to south
*Shape (down/across):* Linear/linear
*Surface fragments:* About 1 percent subrounded stones
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 6.3 inches (moderate)
*Shrink-swell potential:* About 2.1 percent (low)
*Calcium carbonate maximum:* None
*Gypsum maximum:* None
*Salinity maximum:* About 0 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-Symphoricarpos albus/Festuca arizonica-Carex geyeri
*Potential native vegetation:*
Common trees: Rocky Mountain Douglas fir, Engelmann spruce, subalpine fir
Other plants: Arizona fescue, mountain brome, common juniper, elk sedge, russet buffaloberry, bluegrass, boxleaf myrtle, grouse whortleberry, Thurber's fescue, Woods' rose
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
Oi—0 to 2 inches; slightly decomposed plant material
E—2 to 14 inches; cobbly sandy loam
Bt1—14 to 23 inches; gravelly sandy clay loam
Bt2—23 to 47 inches; gravelly sandy clay loam
BCt—47 to 65 inches; very cobbly sandy clay loam

**Minor Components**
Scandard and similar soils
*Composition:* About 8 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Slope:* 20 to 40 percent
*Aspect:* North to south
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic
*Drainage class:* Well drained

*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-Symphoricarpos albus/Festuca arizonica-Carex geyeri
*Distinguishing characteristics:* These soils are 20 to 40 inches deep to sandstone bedrock.

Rock outcrop
*Composition:* About 2 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Slope:* 20 to 40 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/convex
*Depth to restrictive feature:* 0 inches to bedrock, lithic
*Distinguishing characteristics:* Rock outcrop consists of areas of exposed Sangre de Cristo sandstone.

**Major Uses**

Woodland, recreation, wildlife habitat

## M—Pits, mine

**Map Unit Setting**

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 9,000 feet (2,286 to 2,743 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

**Map Unit Composition**

Pits, mine: 100 percent
Minor components: —

**Component Descriptions**

**Pits, mine**
*Slope:* 0 to 65 percent
*Aspect:* North
*Land capability subclass (nonirrigated):* 8s

## McA—McGinty fine sandy loam, 0 to 1 percent slopes

**Map Unit Setting**

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

## Map Unit Composition

McGinty and similar soils: 85 percent
Minor components: 15 percent

## Component Descriptions

**McGinty soils**
*Landscape:* Intermontane basins
*Landform:* Alluvial flats
*Parent material:* Alluvium derived from granite, gneiss, and mica schist
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 20 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Available water capacity:* About 6.5 inches (moderate)
*Shrink-swell potential:* About 0.7 percent (low)
*Calcium carbonate maximum:* About 35 percent
*Gypsum maximum:* None
*Salinity maximum:* About 1 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 1 (slightly sodic)
*Ecological site:* Sandy Bench



**Figure 6.—Landscape and typical vegetation on McGinty fine sandy loam, 0 to 1 percent slopes.**

*Potential native vegetation:* Indian ricegrass, blue grama, needleandthread, skunkbush, buckwheat, fourwing saltbush, sand dropseed, scarlet globemallow, spike dropseed, western wheatgrass
*Land capability subclass (irrigated):* 4e
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
A—0 to 4 inches; fine sandy loam
Bw—4 to 14 inches; sandy loam
Bk1—14 to 33 inches; sandy loam
Bk2—33 to 71 inches; sandy loam
Bk3—71 to 80 inches; sandy loam

**Minor Components**
Cososa and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Outwash plains
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Sandy Bench

Costilla and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Alluvial flats
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Somewhat excessively drained
*Ecological site:* Valley Sand

Graypoint and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Alluvial flats
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 10 to 20 inches to strongly contrasting textural stratification
*Drainage class:* Well drained
*Ecological site:* Mountain Outwash

## McB—McGinty fine sandy loam, 1 to 3 percent slopes

**Map Unit Setting**

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)

*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

**Map Unit Composition**

McGinty and similar soils: 85 percent
Minor components: 15 percent

**Component Descriptions**

**McGinty soils**
*Landscape:* Intermontane basins
*Landform:* Alluvial flats
*Parent material:* Alluvium derived from granite, gneiss, and mica schist
*Slope:* 1 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 20 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Available water capacity:* About 6.5 inches (moderate)
*Shrink-swell potential:* About 0.7 percent (low)
*Calcium carbonate maximum:* About 35 percent
*Gypsum maximum:* None
*Salinity maximum:* About 1 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 1 (slightly sodic)
*Ecological site:* Sandy Bench
*Potential native vegetation:* Indian ricegrass, blue grama, needleandthread, skunkbush, buckwheat, fourwing saltbush, sand dropseed, scarlet globemallow, spike dropseed, western wheatgrass
*Land capability subclass (irrigated):* 4e
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
A—0 to 4 inches; fine sandy loam
Bw—4 to 14 inches; sandy loam
Bk1—14 to 33 inches; sandy loam
Bk2—33 to 71 inches; sandy loam
Bk3—71 to 80 inches; sandy loam

**Minor Components**
Cososa and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Outwash plains
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Sandy Bench

Costilla and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins

*Landform:* Alluvial flats
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Somewhat excessively drained
*Ecological site:* Valley Sand

Graypoint and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Alluvial flats
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 10 to 20 inches to strongly contrasting textural stratification
*Drainage class:* Well drained
*Ecological site:* Mountain Outwash

## McC—McGinty fine sandy loam, 3 to 9 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

### Map Unit Composition

McGinty and similar soils: 85 percent
Minor components: 15 percent

### Component Descriptions

**McGinty soils**
*Landscape:* Intermontane basins
*Landform:* Alluvial fans
*Parent material:* Alluvium derived from granite, gneiss and mica schist
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 20 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Available water capacity:* About 6.5 inches (moderate)
*Shrink-swell potential:* About 0.7 percent (low)
*Calcium carbonate maximum:* About 35 percent
*Gypsum maximum:* None
*Salinity maximum:* About 1 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 1 (slightly sodic)
*Ecological site:* Sandy Bench

*Potential native vegetation:* Indian ricegrass, blue grama, needleandthread, skunkbush, buckwheat, fourwing saltbush, sand dropseed, scarlet globemallow, spike dropseed, western wheatgrass
*Land capability subclass (irrigated):* 4e
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
A—0 to 4 inches; fine sandy loam
Bw—4 to 14 inches; sandy loam
Bk1—14 to 33 inches; sandy loam
Bk2—33 to 71 inches; sandy loam
Bk3—71 to 80 inches; sandy loam

**Minor Components**
Cososa and similar soils
*Composition:* About 10 percent
*Landscape:* Intermontane basins
*Landform:* Outwash plains
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Sandy Bench

Durreo and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Volcanic hills
*Position on landform:* Summits
*Position on landform:* Side slope
*Slope:* 1 to 9 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Drainage class:* Well drained
*Ecological site:* Limy Bench

## MR—Mirror-Rock outcrop complex, 40 to 70 percent slopes

**Map Unit Setting**

*Major Land Resource Area:* 48A
*Elevation:* 11,000 to 12,500 feet (3,353 to 3,810 meters)
*Mean annual precipitation:* 30 to 40 inches (762 to 1,016 millimeters)
*Mean annual air temperature:* 32 to 35 degrees F. (0.0 to 1.5 degrees C.)
*Frost-free period:* 10 to 45 days
*Note:* Located in the tundra of the Sangre de Cristo mountains.

**Map Unit Composition**

Mirror and similar soils: 70 percent
Rock outcrop: 20 percent
Minor components: 10 percent

## Component Descriptions

**Mirror soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank, upper third
*Parent material:* Colluvium and residuum weathered from monzonite and diorite
*Slope:* 40 to 60 percent
*Aspect:* North to south
*Shape (down/across):* Linear/convex
*Surface fragments:* About 5 percent subangular stones, about 5 percent subangular cobbles, about 40 percent subangular gravel
*Depth class:* Moderately deep
*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic
*Drainage class:* Well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Available water capacity:* About 1.1 inches (very low)
*Shrink-swell potential:* About 1.5 percent (low)
*Calcium carbonate maximum:* None
*Gypsum maximum:* None
*Salinity maximum:* About 0 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Alpine Slopes
*Potential native vegetation:* kobresia, tufted hairgrass, willow, alpine bluegrass, purple reedgrass, sedge, arctic bluegrass, spike trisetum, wheatgrass, alpine sagebrush
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
A—0 to 10 inches; extremely cobbly loam
Bw—10 to 25 inches; extremely cobbly loam
R—25 to 60 inches; bedrock

**Rock outcrop**
*Description:* Rock outcrop consists of areas of exposed monzonite and diorite.
*Landscape:* Mountains
*Landform:* Scarps
*Position on landform:* Mountainflank
*Parent material:* Monzonite and diorite
*Slope:* 50 to 70 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/convex
*Depth to restrictive feature:* 0 inches to bedrock, lithic
*Land capability subclass (nonirrigated):* 8s

**Minor Components**
Moran and similar soils
*Composition:* About 10 percent
*Landscape:* Mountains
*Landform:* Mountains
*Position on landform:* Mountaintop
*Slope:* 40 to 60 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/linear

*Drainage class:* Somewhat excessively drained
*Ecological site:* Alpine Slopes
*Distinguishing characteristics:* These soils are greater than 60 inches to igneous bedrock.

**Major Uses**

Grazing land, wildlife habitat

## MsA—Mosca loamy fine sand, 0 to 2 percent slopes

**Map Unit Setting**

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

**Map Unit Composition**

Mosca and similar soils: 85 percent
Minor components: 15 percent

**Component Descriptions**

**Mosca soils**
*Landscape:* Intermontane basins
*Landform:* Alluvial flats
*Parent material:* Coarse-loamy alluvium derived from granite, gneiss, and mica schist
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 15 percent subrounded gravel
*Depth class:* Very deep
*Depth to restrictive feature:* 4 to 7 inches to natric
*Drainage class:* Well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Available water capacity:* About 0.4 inches (very low)
*Shrink-swell potential:* About 0.5 percent (low)
*Calcium carbonate maximum:* About 35 percent
*Gypsum maximum:* None
*Salinity maximum:* About 16 mmhos/cm (moderately saline)
*Sodium adsorption ratio maximum:* About 30 (strongly sodic)
*Ecological site:* Valley Sand
*Potential native vegetation:* Indian ricegrass, blue grama, alkali sacaton, fourwing saltbush, western wheatgrass, greasewood, needleandthread, rubber rabbitbrush
*Land capability subclass (irrigated):* 7e
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
A—0 to 6 inches; loamy sand
Btn—6 to 12 inches; sandy loam
Btkn1—12 to 20 inches; sandy loam
Btkn2—20 to 38 inches; sandy loam

2Bk—38 to 50 inches; loamy sand
2C—50 to 80 inches; very gravelly sand

**Minor Components**
Costilla and similar soils
*Composition:* About 10 percent
*Landscape:* Intermontane basins
*Landform:* Alluvial flats
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Somewhat excessively drained
*Ecological site:* Valley Sand

Hooper, clay loam and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 20 to 60 inches to strongly contrasting textural stratification
*Drainage class:* Moderately well drained
*Ecological site:* Salt Flats

## MtA—Mesita silty clay loam, 0 to 1 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

### Map Unit Composition

Mesita and similar soils: 85 percent
Minor components: 15 percent

### Component Descriptions

**Mesita soils**
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Parent material:* Clayey lacustrine deposits
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth class:* Very deep
*Drainage class:* Moderately well drained
*Slowest permeability:* .06 to 0.2 in./hr. (slow)
*Available water capacity:* About 6.6 inches (moderate)

*Shrink-swell potential:* About 4.3 percent (moderate)
*Flooding hazard:* Occasional
*Ponding hazard:* Occasional
*Calcium carbonate maximum:* About 15 percent
*Gypsum maximum:* About 5 percent
*Salinity maximum:* About 30 mmhos/cm (strongly saline)
*Sodium adsorption ratio maximum:* About 100 (strongly sodic)
*Ecological site:* Salt Flats
*Potential native vegetation:* alkali sacaton, alkali cordgrass, blue grama, greasewood, rubber rabbitbrush, western wheatgrass, fourwing saltbush
*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*
A—0 to 3 inches; silty clay loam
Btnz1—3 to 10 inches; silty clay
Btnz2—10 to 21 inches; clay
Btknyz—21 to 38 inches; clay
2By—38 to 46 inches; sandy clay loam
2C—46 to 55 inches; loamy sand
3C—55 to 80 inches; clay

**Minor Components**

Eastdale and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Poorly drained
*Flooding hazard:* Occasional
*Ecological site:* Salt Meadow

Vastine and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification
*Drainage class:* Poorly drained
*Flooding hazard:* Occasional
*Ecological site:* Wet Meadow

Gerrard and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 12 to 20 inches to strongly contrasting textural stratification
*Drainage class:* Poorly drained
*Flooding hazard:* Occasional
*Ecological site:* Wet Meadow

## MuC—Morval-Uracca complex, 3 to 9 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

### Map Unit Composition

Morval and similar soils: 65 percent
Uracca and similar soils: 20 percent
Minor components: 15 percent

### Component Descriptions

**Morval soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Parent material:* Fine-loamy slope alluvium over residuum weathered from granite, gneiss, and mica schist
*Slope:* 3 to 9 percent
*Aspect:* North to northeast
*Shape (down/across):* Linear/linear
*Surface fragments:* About 25 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 7.5 inches (moderate)
*Shrink-swell potential:* About 2.2 percent (low)
*Calcium carbonate maximum:* About 40 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Foothill Loam
*Potential native vegetation:* western wheatgrass, needleandthread, blue grama, fourwing saltbush, littleseed ricegrass, sedge, rubber rabbitbrush
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
A—0 to 3 inches; loam
Bt1—3 to 7 inches; loam
Bt2—7 to 10 inches; loam
Bt3—10 to 18 inches; loam
Btk—18 to 50 inches; loam
Bk—50 to 80 inches; loam

**Uracca soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Parent material:* Colluvium over residuum derived from granite, gneiss, and mica schist
*Slope:* 3 to 9 percent
*Aspect:* North to northeast
*Shape (down/across):* Linear/linear
*Surface fragments:* About 50 percent subrounded gravel, about 20 percent subrounded cobbles
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 2.7 inches (very low)
*Shrink-swell potential:* About 0.6 percent (low)
*Calcium carbonate maximum:* About 14 percent
*Gypsum maximum:* None
*Salinity maximum:* About 0 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Foothill Loam
*Potential native vegetation:* western wheatgrass, needleandthread, blue grama, fourwing saltbush, littleseed ricegrass, sedge, rubber rabbitbrush
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
A—0 to 4 inches; very cobbly sandy loam
Bt—4 to 11 inches; very cobbly sandy clay loam
Btk—11 to 18 inches; very cobbly sandy clay loam
Bk1—18 to 24 inches; extremely cobbly sandy loam
Bk2—24 to 52 inches; extremely cobbly sandy loam
Bk3—52 to 80 inches; extremely cobbly sandy loam

**Minor Components**
Shawa and similar soils
*Composition:* About 10 percent
*Landscape:* Mountains
*Landform:* Fan remnants, stream terraces
*Position on landform:* Tread
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

Culebra and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Slope:* 3 to 9 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic
*Drainage class:* Well drained
*Ecological site:* Rocky Foothills

## MuE—Morval-Uracca complex, 5 to 35 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

### Map Unit Composition

Morval and similar soils: 60 percent
Uracca and similar soils: 20 percent
Minor components: 20 percent

### Component Descriptions

**Morval soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Parent material:* Fine-loamy slope alluvium over residuum weathered from granite, gneiss, and mica schist
*Slope:* 5 to 35 percent
*Aspect:* North to northeast
*Shape (down/across):* Linear/linear
*Surface fragments:* About 25 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 7.5 inches (moderate)
*Shrink-swell potential:* About 2.2 percent (low)
*Calcium carbonate maximum:* About 40 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Foothill Loam
*Potential native vegetation:* western wheatgrass, needleandthread, blue grama, fourwing saltbush, littleseed ricegrass, sedge, rubber rabbitbrush
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
A—0 to 3 inches; loam
Bt1—3 to 7 inches; loam
Bt2—7 to 10 inches; loam
Bt3—10 to 18 inches; loam
Btk—18 to 50 inches; loam
Bk—50 to 80 inches; loam

**Uracca soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Parent material:* Colluvium over residuum derived from granite, gneiss, and mica schist

*Slope:* 5 to 35 percent
*Aspect:* North to northeast
*Shape (down/across):* Linear/linear
*Surface fragments:* About 50 percent subrounded gravel, about 20 percent subrounded cobbles
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 2.7 inches (very low)
*Shrink-swell potential:* About 0.6 percent (low)
*Calcium carbonate maximum:* About 14 percent
*Gypsum maximum:* None
*Salinity maximum:* About 0 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Foothill Loam
*Potential native vegetation:* western wheatgrass, needleandthread, blue grama, fourwing saltbush, littleseed ricegrass, sedge, rubber rabbitbrush
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
A—0 to 4 inches; very cobbly sandy loam
Bt—4 to 11 inches; very cobbly sandy clay loam
Btk—11 to 18 inches; very cobbly sandy clay loam
Bk1—18 to 24 inches; extremely cobbly sandy loam
Bk2—24 to 52 inches; extremely cobbly sandy loam
Bk3—52 to 80 inches; extremely cobbly sandy loam

**Minor Components**

Shawa and similar soils
*Composition:* About 10 percent
*Landscape:* Mountains
*Landform:* Fan remnants, stream terraces
*Position on landform:* Tread
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

Rock outcrop
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Slope:* 5 to 35 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/convex
*Depth to restrictive feature:* 0 inches to bedrock, lithic

Culebra and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Slope:* 5 to 35 percent

*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic
*Drainage class:* Well drained
*Ecological site:* Rocky Foothills

## PtC—Potrio gravelly silt loam, 1 to 6 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,700 to 9,100 feet (2,347 to 2,774 meters)
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

### Map Unit Composition

Potrio and similar soils: 85 percent
Minor components: 15 percent

### Component Descriptions

**Potrio soils**
*Landscape:* Intermontane basins
*Landform:* Basalt mesas
*Position on landform:* Summits
*Parent material:* Loamy slope alluvium derived from basalt
*Slope:* 1 to 6 percent
*Aspect:* Southwest
*Shape (down/across):* Linear/linear
*Surface fragments:* About 30 percent subangular gravel
*Depth class:* Deep
*Depth to restrictive feature:* 40 to 60 inches to bedrock, lithic
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 4.4 inches (low)
*Shrink-swell potential:* About 2.0 percent (low)
*Calcium carbonate maximum:* About 45 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Foothills
*Potential native vegetation:* western wheatgrass, needleandthread, Wyoming big sagebrush, blue grama, fourwing saltbush, mountain muhly, winterfat
*Land capability subclass (nonirrigated):* 6s

*Typical Profile:*
A—0 to 4 inches; gravelly silt loam
Bt—4 to 15 inches; gravelly silt loam
Btk1—15 to 24 inches; gravelly silt loam
Btk2—24 to 30 inches; gravelly silt loam
Btk3—30 to 36 inches; very cobbly loam
Bk—36 to 42 inches; extremely cobbly sandy loam
R—42 to 80 inches; bedrock

**Minor Components**

Stunner and similar soils
*Composition:* About 10 percent
*Landscape:* Intermontane basins
*Landform:* Outwash fans
*Slope:* 1 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Valley Bench

Travelers and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Basalt scarps on basalt mesas
*Slope:* 1 to 9 percent
*Aspect:* Northwest
*Shape (down/across):* Convex/linear
*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic
*Drainage class:* Well drained
*Ecological site:* Basalt Hill

## RF—Rock outcrop-Rubble land complex, 45 to 90 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A
*Elevation:* 8,000 to 13,250 feet (2,438 to 4,038 meters)
*Mean annual precipitation:* 20 to 40 inches (508 to 1,016 millimeters)
*Mean annual air temperature:* 34 to 41 degrees F. (1.0 to 5.0 degrees C.)
*Frost-free period:* 10 to 50 days

### Map Unit Composition

Rock outcrop: 50 percent
Rubble land: 50 percent
Minor components:

### Component Descriptions

**Rock outcrop**

*Description:* Rock outcrop consists of areas of exposed monzonite and diorite. There are also areas of exposed gneiss and/or mica schist.
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Parent material:* Monzonite, diorite, gneiss, and mica schist
*Slope:* 45 to 90 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/convex
*Depth to restrictive feature:* 0 inches to bedrock, lithic
*Land capability subclass (nonirrigated):* 8s

**Rubble land**
*Description:* Rubble land consists of areas of talus on the surface.
*Landscape:* Mountains
*Landform:* Talus slopes
*Parent material:* Colluvium derived from monzonite, diorite, or basalt
*Slope:* 45 to 90 percent
*Aspect:* All aspects
*Shape (down/across):* Linear/convex
*Surface fragments:* About 48 percent subangular cobbles, about 48 percent subangular stones
*Available water capacity:* About 3.0 inches (very low)
*Shrink-swell potential:* About 1.5 percent (low)
*Calcium carbonate maximum:* None
*Gypsum maximum:* None
*Salinity maximum:* About 0 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Land capability subclass (nonirrigated):* 8s

## RrA—Trinchera fine sandy loam, 0 to 1 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

### Map Unit Composition

Trinchera and similar soils: 85 percent
Minor components: 15 percent

### Component Descriptions

**Trinchera soils**
*Landscape:* Intermontane basins
*Landform:* Outwash plains
*Parent material:* Outwash derived from granite, gneiss, and mica schist
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 5 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 8.7 inches (moderate)
*Shrink-swell potential:* About 2.4 percent (low)
*Calcium carbonate maximum:* About 45 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Valley Bench

*Potential native vegetation:* western wheatgrass, needleandthread, Wyoming big sagebrush, blue grama, fourwing saltbush, muhly, winterfat
*Land capability subclass (irrigated):* 4e
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
A—0 to 4 inches; fine sandy loam
Bt—4 to 15 inches; loam
Btk—15 to 28 inches; loam
Bk1—28 to 40 inches; loam
Bk2—40 to 56 inches; loam
Bk3—56 to 70 inches; loam
Bk4—70 to 80 inches; sandy loam

**Minor Components**

Kibin and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification
*Drainage class:* Well drained
*Ecological site:* Valley Bench

Stunner and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Outwash fans
*Slope:* 1 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Valley Bench

Blanfort and similar soils
*Composition:* About 3 percent
*Landscape:* Intermontane basins
*Landform:* Fan remnants
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Sandy Bench

Shawa and similar soils
*Composition:* About 2 percent
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread

*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

## RrB—Trinchera fine sandy loam, 1 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

### Map Unit Composition

Trinchera and similar soils: 85 percent
Minor components: 15 percent

### Component Descriptions

**Trinchera soils**
*Landscape:* Intermontane basins
*Landform:* Outwash plains
*Parent material:* Outwash derived from granite, gneiss, and mica schist
*Slope:* 1 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 5 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 8.7 inches (moderate)
*Shrink-swell potential:* About 2.4 percent (low)
*Calcium carbonate maximum:* About 45 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Valley Bench
*Potential native vegetation:* western wheatgrass, needleandthread, Wyoming big sagebrush, blue grama, fourwing saltbush, muhly, winterfat
*Land capability subclass (irrigated):* 4e
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
A—0 to 4 inches; fine sandy loam
Bt—4 to 15 inches; loam
Btk—15 to 28 inches; loam
Bk1—28 to 40 inches; loam
Bk2—40 to 56 inches; loam
Bk3—56 to 70 inches; loam
Bk4—70 to 80 inches; sandy loam

**Minor Components**

Kibin and similar soils
- *Composition:* About 5 percent
- *Landscape:* Intermontane basins
- *Landform:* Stream terraces
- *Position on landform:* Tread
- *Slope:* 0 to 3 percent
- *Aspect:* South to west
- *Shape (down/across):* Linear/linear
- *Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification
- *Drainage class:* Well drained
- *Ecological site:* Valley Bench

Stunner and similar soils
- *Composition:* About 5 percent
- *Landscape:* Intermontane basins
- *Landform:* Outwash fans
- *Slope:* 1 to 3 percent
- *Aspect:* South to west
- *Shape (down/across):* Linear/linear
- *Drainage class:* Well drained
- *Ecological site:* Valley Bench

Blanfort and similar soils
- *Composition:* About 3 percent
- *Landscape:* Intermontane basins
- *Landform:* Fan remnants
- *Slope:* 0 to 3 percent
- *Aspect:* South to west
- *Shape (down/across):* Linear/linear
- *Drainage class:* Well drained
- *Ecological site:* Sandy Bench

Shawa and similar soils
- *Composition:* About 2 percent
- *Landscape:* Intermontane basins
- *Landform:* Stream terraces
- *Position on landform:* Tread
- *Slope:* 0 to 3 percent
- *Aspect:* South to west
- *Shape (down/across):* Linear/linear
- *Drainage class:* Well drained
- *Ecological site:* Foothill Loam

## RrD—Trinchera fine sandy loam, 3 to 9 percent slopes

**Map Unit Setting**

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

## Map Unit Composition

Trinchera and similar soils: 85 percent
Minor components: 15 percent

## Component Descriptions

**Trinchera soils**
*Landscape:* Intermontane basins
*Landform:* Outwash fans
*Parent material:* Outwash derived from granite, gneiss, and mica schist
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 5 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 8.7 inches (moderate)
*Shrink-swell potential:* About 2.4 percent (low)
*Calcium carbonate maximum:* About 45 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Valley Bench
*Potential native vegetation:* western wheatgrass, needleandthread, Wyoming big sagebrush, blue grama, fourwing saltbush, muhly, winterfat
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
A—0 to 4 inches; fine sandy loam
Bt—4 to 15 inches; loam
Btk—15 to 28 inches; loam
Bk1—28 to 40 inches; loam
Bk2—40 to 56 inches; loam
Bk3—56 to 70 inches; loam
Bk4—70 to 80 inches; sandy loam

**Minor Components**
Kibin and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread
*Slope:* 3 to 5 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification
*Drainage class:* Well drained
*Ecological site:* Valley Bench

Stunner and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins

*Landform:* Outwash fans
*Slope:* 3 to 6 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Valley Bench

Blanfort and similar soils
*Composition:* About 3 percent
*Landscape:* Intermontane basins
*Landform:* Fan remnants
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Sandy Bench

Shawa and similar soils
*Composition:* About 2 percent
*Landscape:* Intermontane basins
*Landform:* Fan remnants, stream terraces
*Position on landform:* Tread
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

## ShA—Shawa fine sandy loam, 0 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

### Map Unit Composition

Shawa and similar soils: 85 percent
Minor components: 15 percent

### Component Descriptions

**Shawa soils**
*Landscape:* Mountains
*Landform:* Stream terraces
*Position on landform:* Tread
*Parent material:* Fine-loamy alluvium derived from granite, gneiss, and mica schist
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 20 percent subrounded gravel

*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 8.9 inches (moderate)
*Shrink-swell potential:* About 3.6 percent (moderate)
*Calcium carbonate maximum:* About 2 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Foothill Loam
*Potential native vegetation:* western wheatgrass, needleandthread, blue grama, fourwing saltbush, littleseed ricegrass, sedge, rubber rabbitbrush
*Land capability subclass (irrigated):* 4e
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
A1—0 to 7 inches; fine sandy loam
A2—7 to 28 inches; loam
A3—28 to 42 inches; loam
C—42 to 80 inches; gravelly sandy loam

**Minor Components**
Morval and similar soils
*Composition:* About 10 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Slope:* 1 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Loamy Foothills

Uracca and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Slope:* 1 to 3 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

## ShC—Shawa fine sandy loam, 3 to 9 percent slopes

**Map Unit Setting**

*Major Land Resource Area:* 51
*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

### Map Unit Composition

Shawa and similar soils: 85 percent
Minor components: 15 percent

### Component Descriptions

**Shawa soils**
*Landscape:* Mountains
*Landform:* Fan remnants, stream terraces
*Position on landform:* Tread
*Parent material:* Fine-loamy alluvium derived from granite, gneiss, and mica schist
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 20 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 8.9 inches (moderate)
*Shrink-swell potential:* About 3.6 percent (moderate)
*Calcium carbonate maximum:* About 2 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Foothill Loam
*Potential native vegetation:* western wheatgrass, needleandthread, blue grama, fourwing saltbush, littleseed ricegrass, sedge, rubber rabbitbrush
*Land capability subclass (irrigated):* 6e
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
A1—0 to 7 inches; fine sandy loam
A2—7 to 28 inches; loam
A3—28 to 42 inches; loam
C—42 to 80 inches; gravelly sandy loam

**Minor Components**
Morval and similar soils
*Composition:* About 10 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Loamy Foothills

Culebra and similar soils
*Composition:* About 3 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Slope:* 3 to 9 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic
*Drainage class:* Well drained
*Ecological site:* Rocky Foothills

Uracca and similar soils
*Composition:* About 2 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Slope:* 3 to 9 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

## SL—Scandard-Leadville-Rock outcrop complex, 35 to 60 percent slopes, stony

### Map Unit Setting

*Major Land Resource Area:* 48A
*Elevation:* 8,000 to 9,800 feet (2,439 to 2,987 meters)
*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)
*Mean annual air temperature:* 37 to 42 degrees F. (3.0 to 5.5 degrees C.)
*Frost-free period:* 40 to 80 days
*Note:* Located on mountain slopes of the Sangre de Cristo mountains and Spanish Peaks.

### Map Unit Composition

Scandard and similar soils: 45 percent
Leadville and similar soils: 30 percent
Rock outcrop: 15 percent
Minor components: 10 percent

### Component Descriptions

**Scandard soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Parent material:* Colluvium and residuum weathered from sandstone
*Slope:* 35 to 60 percent
*Aspect:* Northwest to southwest
*Shape (down/across):* Linear/linear
*Surface fragments:* About 5 percent subrounded stones, about 10 percent subangular cobbles
*Depth class:* Moderately deep
*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 2.3 inches (very low)
*Shrink-swell potential:* About 1.4 percent (low)
*Calcium carbonate maximum:* None
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-Symphoricarpos albus/Festuca arizonica-Carex geyeri
*Potential native vegetation:*
Common trees: white fir, Rocky Mountain Douglas fir
Other plants: mountain muhly, Arizona fescue, mountain brome, Parry's danthonia, common juniper, fringed sagewort, Gambel oak, kinnikinnick, Oregongrape
*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*
Oi—0 to 1 inch; slightly decomposed plant material
A—1 inch to 7 inches; cobbly sandy loam
E—7 to 11 inches; very gravelly sandy loam
Bt1—11 to 18 inches; very gravelly sandy clay loam
Bt2—18 to 25 inches; very gravelly sandy clay loam
Cr—25 to 27 inches; bedrock
R—27 to 60 inches; bedrock

**Leadville soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Parent material:* Colluvium derived from sandstone
*Slope:* 35 to 50 percent
*Aspect:* Northwest to southwest
*Shape (down/across):* Linear/linear
*Surface fragments:* About 2 percent subrounded stones
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 5.2 inches (low)
*Shrink-swell potential:* About 2.0 percent (low)
*Calcium carbonate maximum:* None
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-Symphoricarpos albus/Festuca arizonica-Carex geyeri
*Potential native vegetation:*
Common trees: white fir, Engelmann spruce, Rocky Mountain Douglas fir
Other plants: Arizona fescue, common juniper, elk sedge, mountain brome, bluegrass, boxleaf myrtle, grouse whortleberry, kinnikinnick, muttongrass, russet buffaloberry, Woods' rose
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
Oi—0 to 2 inches; slightly decomposed plant material
E—2 to 16 inches; cobbly sandy loam
B/E—16 to 22 inches; very cobbly sandy loam
Bt—22 to 48 inches; very cobbly sandy clay loam
BCt—48 to 65 inches; very cobbly sandy clay loam

**Rock outcrop**
*Description:* Rock outcrop consists of areas of exposed Sangre de Cristo sandstone.
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Parent material:* Sandstone
*Slope:* 35 to 60 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/convex
*Depth to restrictive feature:* 0 inches to bedrock, lithic
*Land capability subclass (nonirrigated):* 8s

**Minor Components**
Nopurg and similar soils
*Composition:* About 10 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Slope:* 35 to 50 percent
*Aspect:* Northwest to southwest
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-Symphoricarpos albus/Festuca arizonica-Carex geyeri
*Distinguishing characteristics:* These soils average more than 35 percent clay content.

**Major Uses**

Woodland, recreation, wildlife habitat

## SpD—Sanpedro-Potrio-Rock outcrop complex, 3 to 9 percent slopes

**Map Unit Setting**

*Major Land Resource Area:* 51
*Elevation:* 7,800 to 9,100 feet (2,377 to 2,774 meters)
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

**Map Unit Composition**

Sanpedro and similar soils: 50 percent
Potrio and similar soils: 35 percent
Rock outcrop: 15 percent
Minor components:

**Component Descriptions**

**Sanpedro soils**
*Landscape:* Intermontane basins
*Landform:* Basalt mesas, scarps

*Position on landform:* Summits
*Parent material:* Loamy slope alluvium over residuum derived from basalt
*Slope:* 3 to 9 percent
*Aspect:* Southwest
*Shape (down/across):* Convex/convex, linear
*Surface fragments:* About 10 percent subangular cobbles, about 50 percent subangular gravel
*Depth class:* Shallow
*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 1.2 inches (very low)
*Shrink-swell potential:* About 1.0 percent (low)
*Calcium carbonate maximum:* About 55 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Basalt Hills
*Potential native vegetation:* Indian ricegrass, blue grama, rabbitbrush, Wyoming big sagebrush, spike dropseed, western wheatgrass
*Land capability subclass (nonirrigated):* 6s

*Typical Profile:*
A—0 to 2 inches; very cobbly silt loam
Bt—2 to 7 inches; very cobbly silt loam
Btk—7 to 11 inches; extremely cobbly silt loam
Bk—11 to 17 inches; extremely cobbly loam
R—17 to 80 inches; bedrock

**Potrio soils**
*Landscape:* Intermontane basins
*Landform:* Basalt mesas
*Position on landform:* Summits
*Parent material:* Loamy slope alluvium derived from basalt
*Slope:* 3 to 9 percent
*Aspect:* West to east
*Shape (down/across):* Convex/linear
*Surface fragments:* About 30 percent subangular gravel
*Depth class:* Deep
*Depth to restrictive feature:* 40 to 60 inches to bedrock, lithic
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 4.4 inches (low)
*Shrink-swell potential:* About 2.0 percent (low)
*Calcium carbonate maximum:* About 45 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Foothills
*Potential native vegetation:* western wheatgrass, needleandthread, Wyoming big sagebrush, blue grama, fourwing saltbush, mountain muhly, winterfat
*Land capability subclass (nonirrigated):* 6s

*Typical Profile:*
A—0 to 4 inches; gravelly silt loam
Bt—4 to 15 inches; gravelly silt loam
Btk1—15 to 24 inches; gravelly silt loam
Btk2—24 to 30 inches; gravelly silt loam
Btk3—30 to 36 inches; very cobbly loam
Bk—36 to 42 inches; extremely cobbly sandy loam
R—42 to 80 inches; bedrock

**Rock outcrop**
*Description:* Rock outcrop consists of areas of exposed basalt.
*Landscape:* Intermontane basins
*Landform:* Scarps, mesas
*Position on landform:* Summits
*Position on landform:* Side slope, crest
*Parent material:* Basalt
*Slope:* 3 to 9 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/linear, convex
*Depth to restrictive feature:* 0 inches to bedrock, lithic
*Land capability subclass (nonirrigated):* 8s

## SpF—Sanpedro-Potrio-Rock outcrop complex, 9 to 65 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,700 to 9,100 feet (2,347 to 2,774 meters)
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

### Map Unit Composition

Sanpedro and similar soils: 50 percent
Potrio and similar soils: 30 percent
Rock outcrop: 20 percent
Minor components:

### Component Descriptions

**Sanpedro soils**
*Landscape:* Intermontane basins
*Landform:* Basalt mesas, scarps
*Position on landform:* Summits
*Parent material:* Loamy slope alluvium over residuum derived from basalt
*Slope:* 9 to 65 percent
*Aspect:* Southwest
*Shape (down/across):* Convex/convex, linear
*Surface fragments:* About 10 percent subangular cobbles, about 50 percent subangular gravel
*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 1.2 inches (very low)
*Shrink-swell potential:* About 1.0 percent (low)
*Calcium carbonate maximum:* About 55 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Basalt Hills
*Potential native vegetation:* Indian ricegrass, blue grama, rabbitbrush, Wyoming big sagebrush, spike dropseed, western wheatgrass
*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*
A—0 to 2 inches; very cobbly silt loam
Bt—2 to 7 inches; very cobbly silt loam
Btk—7 to 11 inches; extremely cobbly silt loam
Bk—11 to 17 inches; extremely cobbly loam
R—17 to 80 inches; bedrock

**Potrio soils**
*Landscape:* Intermontane basins
*Landform:* Basalt mesas
*Position on landform:* Summits
*Parent material:* Loamy slope alluvium derived from basalt
*Slope:* 9 to 65 percent
*Aspect:* West to east
*Shape (down/across):* Convex/linear
*Surface fragments:* About 30 percent subangular gravel
*Depth class:* Deep
*Depth to restrictive feature:* 40 to 60 inches to bedrock, lithic
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 4.4 inches (low)
*Shrink-swell potential:* About 2.0 percent (low)
*Calcium carbonate maximum:* About 45 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Foothills
*Potential native vegetation:* western wheatgrass, needleandthread, Wyoming big sagebrush, blue grama, fourwing saltbush, mountain muhly, winterfat
*Land capability subclass (nonirrigated):* 6s

*Typical Profile:*
A—0 to 4 inches; gravelly silt loam
Bt—4 to 15 inches; gravelly silt loam
Btk1—15 to 24 inches; gravelly silt loam
Btk2—24 to 30 inches; gravelly silt loam
Btk3—30 to 36 inches; very cobbly loam
Bk—36 to 42 inches; extremely cobbly sandy loam
R—42 to 80 inches; bedrock

**Rock outcrop**
*Description:* Rock outcrop consists of areas of exposed basalt.
*Landscape:* Intermontane basins
*Landform:* Scarps, mesas
*Position on landform:* Summits
*Position on landform:* Side slope, crest
*Parent material:* Basalt
*Slope:* 9 to 65 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/convex, linear
*Depth to restrictive feature:* 0 inches to bedrock, lithic
*Land capability subclass (nonirrigated):* 8s

## StB—Stunner loam, 1 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

### Map Unit Composition

Stunner and similar soils: 85 percent
Minor components: 15 percent



**Figure 7.—Typical landscape and vegetation on Stunner loam, 1 to 3 percent slopes. The Culebra mountain range is in the background.**

## Component Descriptions

**Stunner soils**
*Landscape:* Intermontane basins
*Landform:* Outwash fans
*Parent material:* Outwash derived from granite, gneiss, and mica schist
*Slope:* 1 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 5 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)
*Available water capacity:* About 8.8 inches (moderate)
*Shrink-swell potential:* About 2.6 percent (low)
*Calcium carbonate maximum:* About 50 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Valley Bench
*Potential native vegetation:* western wheatgrass, blue grama, Wyoming big sagebrush, needleandthread, Indian ricegrass, fourwing saltbush, sand dropseed, winterfat
*Land capability subclass (irrigated):* 4c
*Land capability subclass (nonirrigated):* 6c

*Typical Profile:*
A—0 to 4 inches; loam
Bt—4 to 11 inches; clay loam
Btk—11 to 20 inches; clay loam
Bk1—20 to 25 inches; loam
Bk2—25 to 38 inches; loam
Bk3—38 to 47 inches; loam
Bk4—47 to 77 inches; sandy clay loam
2Bk—77 to 80 inches; very gravelly sand

**Minor Components**
Trinchera and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Outwash plains
*Slope:* 1 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

Fuertes and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread

*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Somewhat poorly drained
*Ecological site:* Wet Meadow

Kibin and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification
*Drainage class:* Well drained
*Ecological site:* Valley Bench

## StC—Stunner loam, 3 to 6 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

### Map Unit Composition

Stunner and similar soils: 85 percent
Minor components: 15 percent

### Component Descriptions

**Stunner soils**
*Landscape:* Intermontane basins
*Landform:* Outwash fans
*Parent material:* Outwash derived from granite, gneiss, and mica schist
*Slope:* 3 to 6 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 5 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)
*Available water capacity:* About 8.8 inches (moderate)
*Shrink-swell potential:* About 2.6 percent (low)
*Calcium carbonate maximum:* About 50 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Valley Bench

*Potential native vegetation:* western wheatgrass, blue grama, Wyoming big sagebrush, needleandthread, Indian ricegrass, fourwing saltbush, sand dropseed, winterfat
*Land capability subclass (irrigated):* 4c
*Land capability subclass (nonirrigated):* 6c

*Typical Profile:*
A—0 to 4 inches; loam
Bt—4 to 11 inches; clay loam
Btk—11 to 20 inches; clay loam
Bk1—20 to 25 inches; loam
Bk2—25 to 38 inches; loam
Bk3—38 to 47 inches; loam
Bk4—47 to 77 inches; sandy clay loam
2Bk—77 to 80 inches; very gravelly sand

**Minor Components**

Trinchera and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Outwash fans
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

Fuertes and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Somewhat poorly drained
*Ecological site:* Wet Meadow

Kibin and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification
*Drainage class:* Well drained
*Ecological site:* Valley Bench

## SzF—Seitz-Tolvar complex, 10 to 65 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A
*Elevation:* 8,500 to 11,000 feet (2,591 to 3,353 meters)
*Mean annual precipitation:* 16 to 25 inches (406 to 635 millimeters)
*Mean annual air temperature:* 33 to 41 degrees F. (0.6 to 5.0 degrees C.)
*Frost-free period:* 40 to 70 days

### Map Unit Composition

Seitz and similar soils: 60 percent
Tolvar and similar soils: 20 percent
Minor components: 20 percent

### Component Descriptions

**Seitz soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountaintop, mountainflank
*Parent material:* Gravelly slope alluvium over colluvium derived from granite, gneiss, and mica schist
*Slope:* 10 to 65 percent
*Aspect:* West to northwest
*Shape (down/across):* Linear/linear
*Surface fragments:* About 40 percent subrounded gravel, about 10 percent subrounded cobbles, about 1 percent subrounded stones
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* .06 to 0.2 in./hr. (slow)
*Available water capacity:* About 4.7 inches (low)
*Shrink-swell potential:* About 1.9 percent (low)
*Calcium carbonate maximum:* About 1 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Mixed Conifer
*Potential native vegetation:*
Common trees: Rocky Mountain Douglas-fir, ponderosa pine, white fir, subalpine fir, juniper
Other plants: Arizona fescue, mountain brome, snowberry
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
Oi—0 to 1 inch; slightly decomposed plant material
E—1 inch to 12 inches; very gravelly sandy loam
Bt/E—12 to 16 inches; very gravelly clay loam
Bt/E—16 to 18 inches; very gravelly sandy loam
Bt—18 to 40 inches; very gravelly clay loam

BCt—40 to 55 inches; extremely gravelly sandy clay loam
C—55 to 80 inches; extremely gravelly sandy loam

**Tolvar soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank, mountaintop
*Parent material:* Slope alluvium over colluvium derived from granite, gneiss, and mica schist
*Slope:* 10 to 65 percent
*Aspect:* West to northwest
*Shape (down/across):* Linear/linear
*Surface fragments:* About 25 percent subrounded gravel, about 8 percent subrounded cobbles, about 8 percent subrounded stones
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 4.5 inches (low)
*Shrink-swell potential:* About 1.4 percent (low)
*Calcium carbonate maximum:* None
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 1 (slightly sodic)
*Ecological site:* Aspen Woodland
*Potential native vegetation:*
Common trees: quaking aspen
Other plants: Columbia needlegrass, mountain brome, slender wheatgrass, Arizona fescue, elk sedge, Letterman's needlegrass, blue wildrye, fleabane, mountain snowberry
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 8 inches; gravelly sandy loam
E—8 to 16 inches; gravelly sandy loam
E/Bt—16 to 20 inches; very gravelly sandy loam
E/Bt—20 to 22 inches; very gravelly sandy clay loam
Bt—22 to 39 inches; extremely gravelly sandy clay loam
C—39 to 80 inches; very gravelly sandy loam

**Minor Components**
Rock outcrop
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Slope:* 10 to 65 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/convex
*Depth to restrictive feature:* 0 inches to bedrock, lithic

Comodore and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Slope:* 20 to 65 percent
*Aspect:* South to southwest
*Shape (down/across):* Convex/linear
*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic
*Drainage class:* Well drained
*Ecological site:* Pinyon-Juniper

Lambe and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainbase, mountaintop
*Slope:* 5 to 65 percent
*Aspect:* Southwest
*Shape (down/across):* Linear/convex
*Drainage class:* Well drained
*Ecological site:* Loamy Park

Uracca and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Slope:* 5 to 65 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

## TlD—Tolvar-Laveta complex, 3 to 9 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A
*Elevation:* 9,000 to 12,000 feet (2,743 to 3,658 meters)
*Mean annual precipitation:* 16 to 25 inches (406 to 635 millimeters)
*Mean annual air temperature:* 33 to 41 degrees F. (0.6 to 5.0 degrees C.)
*Frost-free period:* 40 to 70 days

### Map Unit Composition

Tolvar and similar soils: 65 percent
Laveta and similar soils: 25 percent
Minor components: 10 percent

## Component Descriptions

**Tolvar soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank, mountaintop
*Parent material:* Slope alluvium over colluvium derived from granite, gneiss, and mica schist
*Slope:* 3 to 9 percent
*Aspect:* Southeast
*Shape (down/across):* Linear/convex
*Surface fragments:* About 25 percent subrounded gravel, about 8 percent subrounded cobbles, about 8 percent subrounded stones
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 4.5 inches (low)
*Shrink-swell potential:* About 1.4 percent (low)
*Calcium carbonate maximum:* None
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 1 (slightly sodic)
*Ecological site:* Aspen Woodland
*Potential native vegetation:*
Common trees: quaking aspen
Other plants: Columbia needlegrass, mountain brome, slender wheatgrass, Arizona fescue, elk sedge, Letterman's needlegrass, blue wildrye, fleabane, mountain snowberry
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 8 inches; gravelly sandy loam
E—8 to 16 inches; gravelly sandy loam
E/Bt—16 to 20 inches; very gravelly sandy loam
E/Bt—20 to 22 inches; very gravelly sandy clay loam
Bt—22 to 39 inches; extremely gravelly sandy clay loam
C—39 to 80 inches; very gravelly sandy loam

**Laveta soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Parent material:* Sandy slope alluvium over residuum weathered from sandstone
*Slope:* 3 to 9 percent
*Aspect:* Southeast
*Shape (down/across):* Linear/convex
*Surface fragments:* About 20 percent subangular gravel, about 10 percent subangular cobbles
*Depth class:* Moderately deep
*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic
*Drainage class:* Well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Available water capacity:* About 2.3 inches (very low)

*Shrink-swell potential:* About 0.3 percent (low)
*Calcium carbonate maximum:* About 1 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Mixed Conifer
*Potential native vegetation:*
Common trees: white fir, Rocky Mountain Douglas-fir, ponderosa pine, subalpine fir
Other plants: Arizona fescue, Parry's oatgrass, mountain brome, common juniper, snowberry
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*
Oi—0 to 1 inch; slightly decomposed plant material
E—1 inch to 9 inches; gravelly fine sandy loam
Bt—9 to 17 inches; very gravelly fine sandy loam
C—17 to 26 inches; extremely gravelly fine sandy loam
R—26 to 80 inches; bedrock

**Minor Components**
Rock outcrop
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Slope:* 3 to 9 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/convex
*Depth to restrictive feature:* 0 inches to bedrock, lithic

Seitz and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Slope:* 3 to 9 percent
*Aspect:* West to northwest
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Mixed Conifer

## TlF—Tolvar-Laveta-Rock outcrop complex, 9 to 65 percent slopes

**Map Unit Setting**

*Major Land Resource Area:* 48A
*Elevation:* 8,800 to 11,500 feet (2,682 to 3,505 meters)
*Mean annual precipitation:* 16 to 25 inches (406 to 635 millimeters)
*Mean annual air temperature:* 33 to 41 degrees F. (0.6 to 5.0 degrees C.)
*Frost-free period:* 40 to 70 days

### Map Unit Composition

Tolvar and similar soils: 45 percent
Laveta and similar soils: 30 percent
Rock outcrop: 15 percent
Minor components: 10 percent

### Component Descriptions

**Tolvar soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountaintop, mountainflank
*Parent material:* Slope alluvium over colluvium derived from granite, gneiss, and mica schist
*Slope:* 9 to 65 percent
*Aspect:* Southeast
*Shape (down/across):* Linear/convex
*Surface fragments:* About 25 percent subrounded gravel, about 8 percent subrounded cobbles, about 8 percent subrounded stones
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 4.5 inches (low)
*Shrink-swell potential:* About 1.4 percent (low)
*Calcium carbonate maximum:* None
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 1 (slightly sodic)
*Ecological site:* Aspen Woodland
*Potential native vegetation:*
Common trees: quaking aspen
Other plants: Columbia needlegrass, mountain brome, slender wheatgrass, Arizona fescue, elk sedge, Letterman’s needlegrass, blue wildrye, fleabane, mountain snowberry
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 8 inches; gravelly sandy loam
E—8 to 16 inches; gravelly sandy loam
E/Bt—16 to 20 inches; very gravelly sandy loam
E/Bt—20 to 22 inches; very gravelly sandy clay loam
Bt—22 to 39 inches; extremely gravelly sandy clay loam
C—39 to 80 inches; very gravelly sandy loam

**Laveta soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Parent material:* Sandy slope alluvium over residuum weathered from sandstone
*Slope:* 9 to 65 percent
*Aspect:* Southeast
*Shape (down/across):* Linear/convex

*Surface fragments:* About 20 percent subangular gravel, about 10 percent subangular cobbles
*Depth class:* Moderately deep
*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic
*Drainage class:* Well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Available water capacity:* About 2.3 inches (very low)
*Shrink-swell potential:* About 0.3 percent (low)
*Calcium carbonate maximum:* About 1 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Mixed Conifer
*Potential native vegetation:*
Common trees: subalpine fir, ponderosa pine, Rocky Mountain Douglas-fir, white fir
Other plants: Arizona fescue, mountain brome, common juniper, snowberry, Parry's oatgrass
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
Oi—0 to 1 inch; slightly decomposed plant material
E—1 inch to 9 inches; gravelly fine sandy loam
Bt—9 to 17 inches; very gravelly fine sandy loam
C—17 to 26 inches; extremely gravelly fine sandy loam
R—26 to 80 inches; bedrock

**Rock outcrop**
*Description:* Rock outcrop consists of areas of exposed granite, gneiss, mica schist, and/or sandstone.
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Parent material:* Granite, gneiss, mica schist, and sandstone
*Slope:* 45 to 65 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/convex
*Depth to restrictive feature:* 0 inches to bedrock, lithic
*Land capability subclass (nonirrigated):* 8s

**Minor Components**
Seitz and similar soils
*Composition:* About 10 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Slope:* 10 to 65 percent
*Aspect:* West to northwest
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Mixed Conifer

## ToF—Tolvar gravelly sandy loam, 10 to 65 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A
*Elevation:* 9,000 to 12,000 feet (2,743 to 3,658 meters)
*Mean annual precipitation:* 16 to 25 inches (406 to 635 millimeters)
*Mean annual air temperature:* 33 to 41 degrees F. (0.6 to 5.0 degrees C.)
*Frost-free period:* 40 to 70 days

### Map Unit Composition

Tolvar and similar soils: 85 percent
Minor components: 15 percent

### Component Descriptions

**Tolvar soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountaintop, mountainflank
*Parent material:* Slope alluvium over colluvium derived from granite, gneiss, and mica schist
*Slope:* 10 to 65 percent
*Aspect:* Southeast
*Shape (down/across):* Linear/convex
*Surface fragments:* About 25 percent subrounded gravel, about 8 percent subrounded cobbles, about 8 percent subrounded stones
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 4.5 inches (low)
*Shrink-swell potential:* About 1.4 percent (low)
*Calcium carbonate maximum:* None
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 1 (slightly sodic)
*Ecological site:* Aspen Woodland
*Potential native vegetation:*
Common trees: quaking aspen
Other plants: Columbia needlegrass, mountain brome, slender wheatgrass, Arizona fescue, elk sedge, Letterman's needlegrass, blue wildrye, fleabane, mountain snowberry
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 8 inches; gravelly sandy loam
E—8 to 16 inches; gravelly sandy loam
E/Bt—16 to 20 inches; very gravelly sandy loam
E/Bt—20 to 22 inches; very gravelly sandy clay loam
Bt—22 to 39 inches; extremely gravelly sandy clay loam
C—39 to 80 inches; very gravelly sandy loam

**Minor Components**

Laveta and similar soils
*Composition:* About 10 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Slope:* 5 to 65 percent
*Aspect:* Southeast
*Shape (down/across):* Linear/convex
*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic
*Drainage class:* Well drained
*Ecological site:* Mixed Conifer

Fallriver and similar soils
*Composition:* About 3 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank, mountaintop
*Slope:* 10 to 65 percent
*Aspect:* North
*Shape (down/across):* Linear/linear
*Drainage class:* Somewhat excessively drained
*Ecological site:* Subalpine Loam

Rock outcrop
*Composition:* About 2 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Slope:* 45 to 65 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/convex
*Depth to restrictive feature:* 0 inches to bedrock, lithic

## TvD—Travelers-Rock outcrop complex, 1 to 9 percent slopes

**Map Unit Setting**

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,100 feet (2,286 to 2,469 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

**Map Unit Composition**

Travelers and similar soils: 70 percent
Rock outcrop: 15 percent
Minor components: 15 percent

## Component Descriptions

**Travelers soils**
*Landscape:* Intermontane basins
*Landform:* Basalt scarps on basalt mesas
*Parent material:* Residuum weathered from basalt, andesite, and rhyolite
*Slope:* 1 to 9 percent
*Aspect:* Northwest
*Shape (down/across):* Convex/linear
*Surface fragments:* About 60 percent subangular gravel, about 10 percent subangular cobbles
*Depth class:* Shallow
*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic
*Drainage class:* Well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Available water capacity:* About 1.3 inches (very low)
*Shrink-swell potential:* About 0.1 percent (low)
*Calcium carbonate maximum:* About 30 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Basalt Hill
*Potential native vegetation:* Indian ricegrass, blue grama, green rabbitbrush, Wyoming big sagebrush, spike dropseed, western wheatgrass
*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*
A—0 to 3 inches; gravelly sandy loam
Bk1—3 to 7 inches; very cobbly sandy loam
Bk2—7 to 13 inches; very cobbly sandy loam
R—13 to 80 inches; bedrock

**Rock outcrop**
*Description:* Rock outcrop consists of areas of exposed basalt, andesite, and/or rhyolite.
*Landscape:* Intermontane basins
*Landform:* Scarps on mesas
*Parent material:* Basalt, andesite, and rhyolite
*Slope:* 3 to 9 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/convex, linear
*Depth to restrictive feature:* 0 inches to bedrock, lithic
*Land capability subclass (nonirrigated):* 8s

**Minor Components**
Durreo and similar soils
*Composition:* About 10 percent
*Landscape:* Intermontane basins
*Landform:* Volcanic hills
*Position on landform:* Summits
*Position on landform:* Side slope
*Slope:* 1 to 9 percent

*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Drainage class:* Well drained
*Ecological site:* Limy Bench

Cososa and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Outwash plains
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Sandy Bench

## TvF—Travelers-Rock outcrop complex, 9 to 50 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

### Map Unit Composition

Travelers and similar soils: 70 percent
Rock outcrop: 15 percent
Minor components: 15 percent

### Component Descriptions

**Travelers soils**
*Landscape:* Intermontane basins
*Landform:* Basalt scarps on basalt mesas
*Parent material:* Colluvium over residuum weathered from basalt, andesite, or rhyolite
*Slope:* 9 to 50 percent
*Aspect:* Northwest
*Shape (down/across):* Convex/linear
*Surface fragments:* About 60 percent subangular gravel, about 10 percent subangular cobbles
*Depth class:* Shallow
*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic
*Drainage class:* Well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Available water capacity:* About 1.3 inches (very low)
*Shrink-swell potential:* About 0.1 percent (low)
*Calcium carbonate maximum:* About 30 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Basalt Hill

*Potential native vegetation:* Indian ricegrass, blue grama, green rabbitbrush, Wyoming big sagebrush, spike dropseed, western wheatgrass
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
A—0 to 3 inches; gravelly sandy loam
Bk1—3 to 7 inches; very cobbly sandy loam
Bk2—7 to 13 inches; very cobbly sandy loam
R—13 to 80 inches; bedrock

**Rock outcrop**
*Description:* Rock outcrop consists of areas of exposed basalt, andesite, and/or rhyolite.
*Landscape:* Intermontane basins
*Landform:* Scarps on mesas
*Parent material:* Basalt, andesite, and rhyolite
*Slope:* 45 to 50 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/linear, convex
*Depth to restrictive feature:* 0 inches to bedrock, lithic
*Land capability subclass (nonirrigated):* 8s

**Minor Components**
Durreo and similar soils
*Composition:* About 10 percent
*Landscape:* Intermontane basins
*Landform:* Volcanic hills
*Position on landform:* Summits
*Position on landform:* Side slope
*Slope:* 1 to 9 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Drainage class:* Well drained
*Ecological site:* Limy Bench

Cososa and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Outwash plains
*Slope:* 0 to 3 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Sandy Bench

## UmF—Uracca-Morval complex, 5 to 40 percent slopes

**Map Unit Setting**

*Major Land Resource Area:* 51
*Elevation:* 8,000 to 9,500 feet (2,438 to 2,896 meters)
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)

*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

**Map Unit Composition**

Uracca and similar soils: 65 percent
Morval and similar soils: 20 percent
Minor components: 15 percent

**Component Descriptions**

**Uracca soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Parent material:* Colluvium over residuum derived from granite, gneiss, and mica schist
*Slope:* 5 to 40 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Surface fragments:* About 50 percent subrounded gravel, about 20 percent subrounded cobbles
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 2.7 inches (very low)
*Shrink-swell potential:* About 0.6 percent (low)
*Calcium carbonate maximum:* About 14 percent
*Gypsum maximum:* None
*Salinity maximum:* About 0 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Foothill Loam
*Potential native vegetation:* western wheatgrass, needleandthread, blue grama, fourwing saltbush, littleseed ricegrass, sedge, rubber rabbitbrush
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
A—0 to 4 inches; very cobbly sandy loam
Bt—4 to 11 inches; very cobbly sandy clay loam
Btk—11 to 18 inches; very cobbly sandy clay loam
Bk1—18 to 24 inches; extremely cobbly sandy loam
Bk2—24 to 52 inches; extremely cobbly sandy loam
Bk3—52 to 80 inches; extremely cobbly sandy loam

**Morval soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Parent material:* Fine-loamy slope alluvium over residuum weathered from granite, gneiss, and mica schist
*Slope:* 5 to 40 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Surface fragments:* About 25 percent subrounded gravel
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Available water capacity:* About 7.5 inches (moderate)
*Shrink-swell potential:* About 2.2 percent (low)
*Calcium carbonate maximum:* About 40 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Foothill Loam
*Potential native vegetation:* western wheatgrass, needleandthread, blue grama, fourwing saltbush, littleseed ricegrass, sedge, rubber rabbitbrush
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
A—0 to 3 inches; loam
Bt1—3 to 7 inches; loam
Bt2—7 to 10 inches; loam
Bt3—10 to 18 inches; loam
Btk—18 to 50 inches; loam
Bk—50 to 80 inches; loam

**Minor Components**

Comodore and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Slope:* 20 to 40 percent
*Aspect:* South to southwest
*Shape (down/across):* Convex/linear
*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic
*Drainage class:* Well drained
*Ecological site:* Pinyon-Juniper

Shawa and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Fan remnants, stream terraces
*Position on landform:* Tread
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

Culebra and similar soils
*Composition:* About 3 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Slope:* 5 to 40 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic
*Drainage class:* Well drained
*Ecological site:* Rocky Foothills

Rock outcrop
*Composition:* About 2 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank
*Slope:* 5 to 40 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/convex
*Depth to restrictive feature:* 0 inches to bedrock, lithic

## UrF—Uracca-Culebra complex, 5 to 50 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

### Map Unit Composition

Uracca and similar soils: 50 percent
Culebra and similar soils: 30 percent
Minor components: 20 percent

### Component Descriptions

**Uracca soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Parent material:* Colluvium over residuum derived from granite, gneiss, and mica schist
*Slope:* 5 to 50 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Surface fragments:* About 50 percent subrounded gravel, about 20 percent subrounded cobbles
*Depth class:* Very deep
*Drainage class:* Well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Available water capacity:* About 2.7 inches (very low)
*Shrink-swell potential:* About 0.6 percent (low)
*Calcium carbonate maximum:* About 14 percent
*Gypsum maximum:* None
*Salinity maximum:* About 0 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Foothill Loam
*Potential native vegetation:* western wheatgrass, needleandthread, blue grama, fourwing saltbush, littleseed ricegrass, sedge, rubber rabbitbrush
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*
A—0 to 4 inches; very cobbly sandy loam
Bt—4 to 11 inches; very cobbly sandy clay loam

Btk—11 to 18 inches; very cobbly sandy clay loam
Bk1—18 to 24 inches; extremely cobbly sandy loam
Bk2—24 to 52 inches; extremely cobbly sandy loam
Bk3—52 to 80 inches; extremely cobbly sandy loam

**Culebra soils**
*Landscape:* Mountains
*Landform:* Mountain slopes
*Parent material:* Colluvium over residuum weathered from sandstone
*Slope:* 5 to 50 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Surface fragments:* About 15 percent subangular gravel, about 15 percent subangular cobbles, about 2 percent subangular stones
*Depth class:* Shallow
*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic
*Drainage class:* Well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Available water capacity:* About 0.6 inches (very low)
*Shrink-swell potential:* About 0.3 percent (low)
*Calcium carbonate maximum:* About 20 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Pinus edulis-Juniperus monosperma/Quercus gambelii
*Potential native vegetation:*
Common trees: Rocky Mountain juniper, twoneedle pinyon
Other plants: blue grama, mountain mahogany, slimstem muhly, wax currant, scarlet gilia, sulphur-flower buckwheat
*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*
A—0 to 3 inches; very gravelly coarse sandy loam
Bk—3 to 11 inches; very gravelly coarse sandy loam
R—11 to 80 inches; bedrock

**Minor Components**
Morval and similar soils
*Composition:* About 10 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Slope:* 3 to 9 percent
*Aspect:* Northeast
*Shape (down/across):* Convex/linear
*Drainage class:* Well drained
*Ecological site:* Loamy Foothills

Rock outcrop
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Mountain slopes
*Position on landform:* Mountainflank

*Slope:* 5 to 50 percent
*Aspect:* All aspects
*Shape (down/across):* Convex/convex
*Depth to restrictive feature:* 0 inches to bedrock, lithic

Shawa and similar soils
*Composition:* About 5 percent
*Landscape:* Mountains
*Landform:* Fan remnants, stream terraces
*Position on landform:* Tread
*Slope:* 3 to 9 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Well drained
*Ecological site:* Foothill Loam

## VeA—Ventero mucky peat, 0 to 1 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

### Map Unit Composition

Ventero and similar soils: 85 percent
Minor components: 15 percent

### Component Descriptions

**Ventero soils**
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Parent material:* Herbaceous organic material over loamy alluvium derived from granite, gneiss, and mica schist
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth class:* Very deep
*Drainage class:* Very poorly drained
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)
*Available water capacity:* About 13.8 inches (very high)
*Shrink-swell potential:* About 2.1 percent (low)
*Flooding hazard:* Occasional
*Ponding hazard:* Frequent
*Seasonal high water table depth:* About 0 to 6 inches
*Calcium carbonate maximum:* About 1 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Wet Meadow

*Potential native vegetation:* tufted hairgrass, Nebraska sedge, slender wheatgrass, western wheatgrass, bluejoint, reedgrass, Baltic rush, sedge
*Land capability subclass (nonirrigated):* 6w

*Typical Profile:*
Oi—0 to 8 inches; peat
Oe—8 to 23 inches; mucky peat
A—23 to 38 inches; silty clay loam
Oa—38 to 44 inches; muck
Cg—44 to 60 inches; very fine sandy loam

**Minor Components**

Eastdale and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Poorly drained
*Flooding hazard:* Occasional
*Ecological site:* Salt Meadow

Fuertes and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Stream terraces
*Position on landform:* Tread
*Slope:* 0 to 2 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Somewhat poorly drained
*Ecological site:* Wet Meadow

Vastine and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification
*Drainage class:* Poorly drained
*Flooding hazard:* Occasional
*Ecological site:* Wet Meadow

## VgA—Vastine-Gerrard complex, 0 to 1 percent slopes

**Map Unit Setting**

*Major Land Resource Area:* 51
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)

*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

**Map Unit Composition**

Vastine and similar soils: 45 percent
Gerrard and similar soils: 40 percent
Minor components: 15 percent

**Component Descriptions**

**Vastine soils**
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Parent material:* Fine-loamy over sandy and gravelly alluvium derived from granite, gneiss, and mica schist
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 0 percent subrounded gravel
*Depth class:* Very deep
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification
*Drainage class:* Poorly drained
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)
*Available water capacity:* About 6.1 inches (moderate)
*Shrink-swell potential:* About 1.6 percent (low)
*Flooding hazard:* Occasional
*Seasonal high water table depth:* About 10 to 20 inches
*Calcium carbonate maximum:* About 5 percent
*Gypsum maximum:* About 3 percent
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Wet Meadow
*Potential native vegetation:* tufted hairgrass, Nebraska sedge, slender wheatgrass, western wheatgrass, bluejoint, reedgrass, Baltic rush, sedge
*Land capability subclass (irrigated):* 4w
*Land capability subclass (nonirrigated):* 6w

*Typical Profile:*
A—0 to 3 inches; loam
Ag—3 to 13 inches; loam
Agb—13 to 21 inches; clay loam
Bg—21 to 27 inches; loam
2Cg1—27 to 58 inches; sand
2Cg2—58 to 80 inches; sand
3Cg—80 to 90 inches; extremely gravelly sand

**Gerrard soils**
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Parent material:* Fine-loamy over sandy and gravelly alluvium derived from granite, gneiss, and mica schist

*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Surface fragments:* About 0 percent subrounded gravel
*Depth class:* Very deep
*Depth to restrictive feature:* 12 to 20 inches to strongly contrasting textural stratification
*Drainage class:* Poorly drained
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)
*Available water capacity:* About 4.5 inches (low)
*Shrink-swell potential:* About 0.8 percent (low)
*Flooding hazard:* Occasional
*Seasonal high water table depth:* About 10 to 20 inches
*Calcium carbonate maximum:* About 5 percent
*Gypsum maximum:* None
*Salinity maximum:* About 2 mmhos/cm (nonsaline)
*Sodium adsorption ratio maximum:* About 0 (nonsodic)
*Ecological site:* Wet Meadow
*Potential native vegetation:* tufted hairgrass, Nebraska sedge, slender wheatgrass, western wheatgrass, bluejoint, reedgrass, Baltic rush, sedge
*Land capability subclass (irrigated):* 4w
*Land capability subclass (nonirrigated):* 6w

*Typical Profile:*
A—0 to 3 inches; sandy loam
Ag—3 to 15 inches; clay loam
2Cg1—15 to 27 inches; loamy fine sand
2Cg2—27 to 48 inches; sand
3Cg—48 to 80 inches; extremely gravelly loamy sand

**Minor Components**

Eastdale and similar soils
*Composition:* About 10 percent
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Poorly drained
*Flooding hazard:* Occasional
*Ecological site:* Salt Meadow

Mesita and similar soils
*Composition:* About 5 percent
*Landscape:* Intermontane basins
*Landform:* Flood plains
*Slope:* 0 to 1 percent
*Aspect:* South to west
*Shape (down/across):* Linear/linear
*Drainage class:* Moderately well drained
*Flooding hazard:* Occasional
*Ecological site:* Salt Flats

# W—Water

### Map Unit Setting

*Major Land Resource Area:* 51
*Elevation:* —-
*Mean annual precipitation:* —-
*Mean annual air temperature:* —-
*Frost-free period:* —-

### Map Unit Composition

Water: 100 percent
Minor components: —

### Component Descriptions

Water

# Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

## Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

### Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, slightly limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately well suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

### Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact

on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

## Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland and hydric soils are described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

### Crops and Pasture in Costilla County Area

Dick Sparks, Agronomist, Natural Resources Conservation Service

According to Colorado Census of Agriculture published data, irrigated cropland in Costilla County has averaged around 39,000 acres in recent years (USDA/NASS, 2009.)

Alfalfa is the principal perennial crop (18,500 acres), along with grass hay (3,500 acres). Spring-planted small grains include malt barley (5,000 acres); soft white and hard red spring wheats (2,200 acres); and oats (2,400 acres). Hard white and hard red winter wheat has averaged just over 700 acres.

Fresh market potatoes and seed potatoes are the primary row crops, and account for around 4,800 acres grown per year. Spinach, broccoli, cabbage, and other vegetable crops have historically been grown, but have all but disappeared in current rotations.

In addition, there are several thousand acres of irrigated grass pasture and native meadows that furnish summer and winter pasture for livestock.

When irrigation and management are optimal, the soils and climate of the survey area are well suited to high yields and high quality crops. Potatoes grown under center pivot irrigation from surface and groundwater commonly yield in excess of 400 cwt per acre. Potatoes commonly are grown for one year, then rotated to one year of small grains that produce in excess of 120 bushels per acre. Alfalfa commonly produces in excess of 4 tons per acre per year in two and three cutting systems. *(See Table 5.—Irrigated yields by map unit component.*)

### Historic Agricultural Development

The earliest Hispanic settlements in the area around San Luis were based on running sheep and other livestock on smaller acreages adjacent to streams. *Acequias* (community irrigation ditches) diverted irrigation water from streams onto soils along the streams. Long, narrow strips of land *(vara strips)* were devised along these ditches in order to grant each farmer access to the irrigation water (Baumann, 2001.)

Each settler and his descendents depended upon their granted land for crops, hay, and pasture, as well as on the upland areas for grazing, firewood collection, and hunting. Subsequent generations inherited continually narrowing vara strips for these same resources. Irrigated patches of oats, beans, some vegetables, and corn were common, as well as pasture and grass hay grown on the wetter soils along the stream bottoms.

The larger, more intensely farmed areas developed as major irrigation and land development companies diverted irrigation water into reservoirs and farther out on the alluvial soils. These areas were more commonly devoted to larger acreages of

cash crops of alfalfa, spring small grains, and eventually potatoes and limited areas of irrigated vegetables. Often, much more land was sold and developed than the diverted water could sustain.

The final development occurred with the drilling of deep irrigation wells to supplement diverted surface water. Concrete lining of irrigation delivery ditches and installation of center pivot irrigation systems has led to the production of annual grain crops, potatoes and alfalfa that is common in Costilla County today. Irrigation pipelines and center pivots are installed to improve irrigation efficiency and sustainability of this irrigated acreage. Reducing the average consumptive use of cropland is a critically important requirement to bring sustainability and balance to Costilla County agriculture. Water supplies are over-appropriated, so no new irrigation development is legal or possible.

**Wind Erosion, Soil Quality, and Irrigation Water**

Wind erosion and reduced organic matter are serious concerns where erodible, low organic matter loamy sands and fine sandy loams include potatoes and small grains in rotation. Little or no residue following the potato crop gives rise to extremely high levels of wind erosion when establishing the next spring planted crop. Moldboard plowing or excessive disking or chisel-plowing destroys protective residue, and should be avoided even on continuous grain rotations.

Mulch tillage systems that manage high levels of small grain residue on the surface prior to going back to potatoes or spring grain or canola or new alfalfa seedings are critical to mitigate average soil loss. Changing the potato rotation to include an additional year of small grain or sorghum-sudan cover crops would help even more, and have the benefit of reducing the average consumptive use and the rise of nematode and other pathogens in the soil. Alfalfa or winter wheat grown in the rotation also improves soil quality and reduces erosion, but likely will increase average consumptive use of crops.

This high level of management is most critical where potatoes are grown, most often on the Cososa, Costilla, or Mosca loamy sand soils as well as on the fine sandy loams in the McGinty and Blanfort series. Potatoes or continuous small grains grown on the Grayco or Graypoint gravelly sandy loams have less serious erosion, but still need the same mulch tillage management.

Because of low rainfall and the nearly-level topography of the valley floor, water erosion is not a significant resource concern.

**Nutrient & Irrigation Management**

Annual applications of fertilizer are essential to maintain yields shown. The lower water-holding capacity of the more intensely farmed cropland soils often leads to leaching of soluble nutrients, such as nitrates, into deeper groundwater. Annual application of nitrogen fertilizers should be based upon current soil testing and split applications. Total requirements should not exceed recommendations provided by and available from the Colorado State University Extension Service, and the San Luis Valley Experiment Station.

Carefully monitored irrigation management is also critically important to achieve optimal yields and to minimize leaching of nitrates. Irrigating based upon available daily evaporation-transpiration (ET) needs of the crops, and applying irrigations that do not exceed the water-holding capacity of the rooting zone will also minimize nitrate leaching. Rotations that include deeper-rooted high residue crops (winter wheat, alfalfa) are more effective at picking up nitrate that escapes below the root zone of spring planted small grains.

Crops grown on soils in the survey area also respond well to phosphorous-based fertilizers, which commonly are not adequate. Potash applications and minor nutrients

normally are not required except on potato production. Manure applications are beneficial, but not commonly practiced.

Draining for saline or sodic soils, amendments to reduce sodic salts, and planned leaching may be needed on a few minor soils. Mosca loamy sands respond well. Hooper and Mesita soils are slow to respond, and likely will never be productive for sodium-sensitive crops. Draining of soils with high water tables is not commonly practiced, and should be implemented only where it is not adverse to adjacent wetlands.

### Yields per Acre

The average yields per acre that can be expected of the principal irrigated crops under a high level of management are shown in Table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in Table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

### Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit.

*Capability classes*, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

*Capability subclasses* are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The soils in each capability class or subclass is shown in Table 5. The capability classification of map units in this survey area is given in the section *Detailed Soil Map Units*.

**Prime Farmland**

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation’s short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation’s prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0

to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 9,981 acres, or nearly 1.25 percent of the survey area, would meet the requirements for prime farmland if an adequate and dependable supply of irrigation water were available.

The map units in this survey area that meet the requirements for prime farmland are:

StB Stunner loam, 1 to 3 percent slopes
Stc Stunner loam, 3 to 6 percent slopes

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in Table 6. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in Table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described in the *Detailed Soil Map Units*.

## Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (USDA, 1999) and “Keys to Soil Taxonomy” (USDA, 1998) and in the “Soil Survey Manual” (USDA, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in “Field Indicators of Hydric Soils in the United States” (Hurt and others, 1996).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The following map units meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 1996).

| | |
|---|---|
| Ag | Cryaquolls |
| FLB | Fluvaquents, nearly level |
| VgA | Vestine-Gerrard complex, 0 to 1 percent slopes |
| GME | Aquic Dystrocryepts |
| VeA | Ventero mucky peat, 0 to 1 percent slopes |

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The following map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

| | |
|---|---|
| EaA | Eastdale loam, 0 to 1 percent slopes |
| MtA | Mesita silty clay loam, 0 to 1 percent slopes |

## Rangeland

By Scott Woodall, Rangeland Management Specialist, Natural Resources Conservation Service

About 65-75% of the Costilla County survey area is rangeland with cattle grazing as the dominant practice of agriculture. The survey area extends from the San Luis valley floor to the high mountains of the Sangre de Cristo. As elevation changes, precipitation also changes from as low as 6 inches of mean annual precipitation at the valley floor to over 30 inches in the subalpine zone.

The western third of the survey area opens into a broad valley bordering the Rio Grande River. This area has a long history of livestock use dating back to its association with Spain. For decades sheep would winter in this broad valley and summer in the high country. Through the 1900s, sheep populations in Costilla County declined while cattle increased. The years of sheep and cattle grazing in roughly the same seasonal pattern has seemingly caused an ecological shift in the survey area from a cool season, bunch grass community to a warm season grass, shrub community.

The survey area can be divided into two *Major Land Resource Areas* (MLRAs): these are geographically associated land resource units (LRUs), designated areas that are distinguished by climate and topography. For instance, MLRA 51 is on the valley floor, where precipitation is less than 8 inches and soils are frequently calcareous or saline in nature.

Much of the higher elevation rangeland (MLRA 48A) is managed by two large ranches. They have active range programs that use livestock and prescribed burning

as tools to improve range condition and wildlife habitat. These ranches have used moderately stocked, multiple cell grazing rotations which allow for adequate rest periods between grazing events. Through their management, the biodiversity of both flora and fauna have increased as well as the quantity and quality of livestock forage.

In Costilla County, much of the valley floor (MLRA 51) has been subdivided but has little development, other than roads. A good portion of this subdivided land has been leased for cattle grazing. There are a few established ranches and farms that take advantage of irrigation for hay and crop production. Prominent ecological sites within this area include the *Salt Meadow, Salt Flat, Sandy Bench*, and *Limy Bench*. All of these sites are characterized by low precipitation patterns. This soil survey can be used to correlate soil type with an ecological site.

The *Salt Meadow ecological site* is on low-lying land near main streams. The ground surface may be smooth and nearly level or gently undulating due to old channels, oxbows, and swales. The dominant plant is alkali sacaton, a warm season, rhizome grass. In Costilla County much of the salt meadow is both hayed and grazed.

Slightly higher than the salt meadow ecological site is the *Salt Flat*. This is a very prominent site within the broad central floor of the San Luis Valley. The topography is very level and the vegetation is characterized by salt-tolerant grasses mixed with greasewood and rubber rabbitbrush. Alkali sacaton is normally the dominant grass followed by alkali wildrye and alkali cordgrass. In much of Costilla County, this site has transitioned to a greasewood/rabbitbrush-dominated site with a minor component of alkali sacaton and a remnant of cool season grasses. Bare ground areas, commonly known as “slick spots,” often occur on this site. Livestock production is the common agricultural use of this land.

The *Sandy Bench site* is intermixed through the valley floor. Traditionally, dominant grasses included Indian ricegrass, needleandthread, spike dropseed, and western wheatgrass. Because of how this site has been managed, many cool season grasses are remnant. Blue grama and Green’s rabbitbrush currently play a dominant role on the site.

The *Limy Bench site* is typically on broad benches and fans above lower valley land. It has developed mostly on igneous outwash material, but overlies volcanic bedrock in a few places. Soils are highly calcareous, thereby producing a plant community that performs with a strong lime zone. Winterfat traditionally and currently dominates the plant community. Indian ricegrass and western wheat have been reduced to remnants in much of Costilla County, while blue grama and Green’s rabbitbrush have increased.

In summary, an ecological shift may have taken place in much of Costilla County from a cool-season grass to a warm-season grass/shrub community. If change were to occur to a higher range condition, it would be through improved grazing strategies over a long period of time. Grazing strategies that include rotation of livestock to allow plants time to recover, along with proper stocking rates, should begin an ecological shift toward higher productivity and diversity.

## Ecological Sites and Characteristic Native Vegetation

In areas that have similar climate and topography, differences in the kind and amount of rangeland and forest understory vegetation, and the tree species are closely related to the kind of soil. Effective management is based upon the relationship between the soils and vegetation and water.

Table 7 shows, for each soil, the ecological site; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic native vegetation; the average percentage of each species for rangeland and for forest understory vegetation; and common trees and their site index. An explanation of the column headings in Table 7 follows.

An *ecological site* is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of the site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

*Total production* is the amount of dry-weight vegetation that can be expected to grow annually in a well managed area that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture. Yields are adjusted to a common percentage of air-dry moisture content.

*Characteristic native vegetation*consists of the grasses, forbs, and shrubs that make up most of the potential natural plant community on each soil is listed by common name. Under *composition*, the expected percentage of the total annual production of rangeland and forest understory vegetation is given for each species making up the characteristic native vegetation. The amount that can be used as forage depends upon the kinds of grazing animals and on the grazing season.

*Common trees* are those tree species that naturally occur on a soil. The potential productivity is expressed as *site index*. The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

## Forestry

By Jeff Burns, District Forester, Colorado State Forest Service

About 20 percent of Costilla County is forested. Dominant forest types are pinyon–juniper woodlands in the mountains, aspen and mixed conifers in the mountains, and cottonwood riparian areas on the valley floor.

Ponderosa pine and Douglas fir occupy dry upland sites in the survey area, while spruce-fir forest is predominant on cool, moist slopes. Aspen occupies riparian systems and a wide range of sites in pure and mixed stands above 9,000 feet. Lodgepole pine can be found in the survey area's southernmost range around 10,000 feet.

Virtually all of Costilla County is privately owned. This is significant when looking at the history of forest management and the use of wood products. At the turn of the 19th century, the management of these woodlands had been for personal use such as firewood, tools, and some timbers used for building materials. The railroad and mining industries utilized minor amounts of wood products for railroad ties and mine timbers.

Recently, forest management activities have yielded wood products such as lumber and house logs. The management of these woodlands has not significantly altered the soils of Costilla County; rather, wildland fire has played a much larger role in influencing the soils in this area.

## Forest Productivity and Management

The tables in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forest management.

### Forest Management

In Tables 8 through 11, interpretive ratings are given for various aspects of forest management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately well suited* indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified forest management practice (1.00) and the point at which the soil feature is not a limitation (0.00).

For *limitations affecting construction of haul roads and log landings*, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of *slight* indicates that no significant limitations affect construction activities, *moderate* indicates that one or more limitations can cause some difficulty in construction, and *severe* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, *moderate* indicates that rutting is likely, and *severe* indicates that ruts form readily.

Ratings in the column *hazard of off-road or off-trail erosion* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging,

grazing, mining, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance; and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately well suited, or poorly suited to this use.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately well suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately well suited, or poorly suited to this use.

Ratings in the column *suitability for mechanical site preparation (surface)* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

Ratings in the column *suitability for mechanical site preparation (deep)* are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

## Recreation

The soils of the survey area are rated in Tables 12 and 13 according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the

specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in Tables 12 and 13 can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, and sanitary facilities.

*Camp areas* require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas.

The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Picnic areas* are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Playgrounds* require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty

when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Paths and trails* for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

*Off-road motorcycle trails* require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

*Golf fairways* are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

## Wildlife Habitat

by Chanda M. Pettie, Private Land Wildlife Biologist, NRCS, CO Watershed Network and Colorado Department of Wildlife

Soils are the major factor in determining the amount and distribution of food, water, and cover available for wildlife, referred to as wildlife habitat. The complex topography, hydrology, and variety of soils in Costilla County help to form the habitat that is vital in contributing to the bio-diversity of the San Luis Valley. Costilla County is a key location in providing unique habitat for numerous wildlife species. Part of the uniqueness is the fact that over 99% of the land base is held in private ownership.

Soil surveys can be useful in making management decisions on areas where the goal is primarily wildlife habitat, and just as importantly, where wildlife habitat considerations will be incorporated into other land management goals.

*Habitat for grassland wildlife*—A majority of the grasslands in Costilla County are montane and intermontane grasslands, sagebrush/grass mix, rabbitbrush/grass mix, and irrigated meadows. These habitats are often transitional zones between other habitat types, providing plant diversity for numerous wildlife species. These areas can easily be managed to provide forage and cover for a wide array of wildlife. Common management practices could include grazing/haying management, weed control, preventing habitat fragmentation, and minimizing herbicide and insecticide use. Grassland wildlife includes migrating and ground nesting birds, small and large mammals, Gunnison’s prairie dog, plains spadefoot toad, and western burrowing owl.

*Habitat for wetland wildlife*—Wetlands, and their associated habitats, support a majority of the wildlife in the county and yet are less than 2% of the total landscape. Wetlands that have the capability to support the highest number and diversity of wildlife species include wet meadows, short-emergent and tall-emergent wetlands, springs, and playas. However, all wetland types are important to local conservation and play a critical role in wildlife habitat.

A majority of the wetlands found in Costilla County include irrigated wet meadows and short-emergent wetlands characterized by grasses, sedges, rushes, and variety

of forbs that are seasonally and shallowly flooded. These wetlands provide valuable forage areas for a wide variety of wildlife, and if managed properly, can provide excellent cover for ground-nesting birds, amphibians, and small mammals. Many of these are considered declining species; Northern leopard frog, Woodhouse's toad, teal species, short-eared owl, white-faced ibis, willet, among numerous others.

Semi-permanent wetlands often associated with deeper water and tall-emergent vegetation (cattails, bulrush) are often associated with man-made reservoirs, ponds, and irrigation overflow areas. They become important nesting areas for marsh species and can contain a high density of water birds.

Various sources report that riparian areas make up less than 3% of the total landscape, but up to 80% of the bird species use them for some part of their life cycle. Riparian areas are critical for several species including the southwestern willow flycatcher, Lewis's woodpecker, Wilson's warbler, bobcat, and several small mammals.

A majority of the original wetlands in the survey area have been lost over the last 150 years. Today, many of the productive wetlands in Costilla County are artificially developed and maintained. Such wetlands are often rich with wildlife when properly understood and managed. Some common practices to enhance wetland and riparian areas include grazing/haying management, development of buffer zones, water management, weed control, and protection from conversion to other land types.

*Habitat for sagebrush steppe wildlife*—Sagebrush habitat and lower elevation shrublands are one of the dominant habitat types covering over 35% of the land in the county. These areas include; Basin big sagebrush/grass, winterfat shrub steppe/ grass, pinyon-juniper/sagebrush, rabbitbrush/grass, xeric mountain shrub mix, and greasewood flats. The primary use of these areas has been for livestock grazing and is generally considered unfavorable land due to the limited forage production. Many areas have been converted to introduce grasses in an attempt to increase the forage value. However, from a biological view, shrub steppe areas can be considerably diverse providing unique wildlife habitat. The topography often has depressions or drainages that form meadows or riparian areas that add to this diversity.

Greasewood flats, located in saline zones, have sparse grass cover but provide some of the most valuable wetland habitat to waterfowl and shorebirds during wet periods, called playas.

Historically, sagebrush habitat covered huge expanses of land. In Costilla County, conversion by irrigation, brush removal, herbicide, plowing, chaining, overgrazing, reseeding with introduced grasses, and fragmentation have compromised the integrity of this habitat. Restoration or enhancement of sagebrush habitat may include reseeding the native grass component (generally bunchgrasses), weed control, and grazing management. Sagebrush dependent wildlife species generally require large contiguous areas. Wildlife dependent upon these areas include brewer's sparrow, sage sparrow, short-eared owl, Gunnison's prairie dog, short-horned lizard, desert cottontail, and pronghorn.

*Habitat for mountain shrubland wildlife*—Mountain shrubland consists primarily of Gambel's oak and other associated shrubs; including serviceberry, mountain mahogany, chokecherry, snowberry, and other forage producing bushes, providing valuable food and cover for many wildlife species due to the large availability of forage and browse. Associated wildlife includes wild turkey, Lewis's woodpecker, broad-tailed hummingbird, Steller's Jay, Green-tailed Towhee, mountain cottontail, and mule deer.

*Habitat for woodland wildlife*—The topography and soils of Costilla County support vast areas of woodland habitat, approximately 40% of the total landscape. A majority of these areas includes conifer dominated forests of Engelmann spruce-fir, Douglas fir, ponderosa pine, mixed-conifer, and pinyon juniper woodland. Deciduous forests include aspen and mountain riparian areas. Historically, these woodland areas naturally developed a complex mosaic of open meadows and forest stands of varying

age and species composition. Alteration of this natural state by fire exclusion, timber harvest, grazing, residential development, chemical applications, and introduction of non-native plants and animals, has degraded many areas, resulting in stands of overstocked small trees, heavy fuel loads of dead and down trees, habitat fragmentation, even-aged stands, and loss of understory vegetation.

Of the wildlife that regularly breed and reside in woodlands, few are confined to a single habitat type. In particular these are elk, mule deer, black bear, mountain lion, bobcat, grouse, squirrels, and woodpeckers. Wildlife of particular concern includes the Flammulated owl, broad-tailed hummingbird, violet-green swallow, Abert's squirrel, and lynx.

*Habitat for alpine wildlife*—Alpine tundra occurs above timberline, generally at 11,500 feet in elevation. Costilla County is unique in that this habitat is in private ownership and makes up 13% of the total alpine tundra in the state of Colorado. Alpine vegetation consists of a variety of grasses, forbs, and low shrub communities. They often include boulder fields, cliff/rock, and snowfields. Because of the environmental conditions, few wildlife species are found in these areas. However, the few species that either inhabit or breed in these areas include bighorn sheep, yellow-bellied marmots, American pipit, and white-tailed ptarmigan.

In general, most areas in the county are not managed primarily for wildlife. However, with good land management practices to achieve goals of conserving and protecting land resources, the land is also commonly improved for wildlife habitat. Wildlife assistance can be obtained from various local, state, and Federal agencies including the USDA-Natural Resources Conservation Service, the Colorado Division of Wildlife, and the U.S. Fish & Wildlife Service.

## Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

*Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.*

*The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.*

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential,

available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the *Glossary*.

**Building Site Development**

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 14 and 15 show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

*Dwellings* are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding,

slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

*Small commercial buildings* are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

*Local roads and streets* have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

*Shallow excavations* are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

*Lawns and landscaping* require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

### Sanitary Facilities

Tables 16 and 17 show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately

favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

*Septic tank absorption fields* are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

*Sewage lagoons* are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

*Daily cover for landfill* is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

### Construction Materials

Tables 18 and 19 give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

The soils are rated *good, fair,* or *poor* as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials

are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

The soils are rated as a *probable* or *improbable* source of sand and gravel. A rating of *probable* means that the source material is likely to be in or below the soil. The numerical ratings in these columns indicate the degree of probability. The number 0.00 indicates that the soil is an improbable source. A number between 0.00 and 1.00 indicates the degree to which the soil is a probable source of sand or gravel.

*Sand* and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In Table 18, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the lowest layer of the soil contains sand or gravel, the soil is rated as a probable source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

*Topsoil* is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

*Reclamation material* is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

*Roadfill* is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the

soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

# Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics. These results are reported in Table 20.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

## Engineering Index Properties

Table 20 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

*Depth* to the upper and lower boundaries of each layer is indicated.

*Texture* is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the *Glossary*.

*Classification* of the soils is determined according to the Unified soil classification system (ASTM, 1998) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1998).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in Table 20.

*Rock fragments* larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

*Percentage (of soil particles) passing designated sieves* is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

*Liquid limit* and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

## Physical Properties

Table 21 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

*Depth* to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

*Sand* as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In Table 21, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

*Silt* as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In Table 21, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

*Clay* as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In Table 21, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil

properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

*Moist bulk density* is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

*Saturated hydraulic conductivity* refers to the ability of a soil to transmit water or air. The term “permeability,” as used in soil surveys, indicates saturated hydraulic conductivity ($K_{sat}$). The estimates in the table indicate the rate of water movement, in micrometers per second (um/sec), when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

*Available water capacity* refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

*Linear extensibility* refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

*Organic matter* is the plant and animal residue in the soil at various stages of decomposition. In Table 21, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

*Erosion factors* are shown in Table 21 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and

permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

*Erosion factor Kw* indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

*Erosion factor Kf* indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

*Erosion factor T* is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

*Wind erodibility groups* are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.
8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

*Wind erodibility index* is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

## Chemical Properties

Table 22 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

*Depth* to the upper and lower boundaries of each layer is indicated.

*Cation-exchange capacity* is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

*Soil reaction* is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

*Calcium carbonate* equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

*Gypsum* is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

*Salinity* is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

*Sodium adsorption ratio* (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

## Soil Features

Table 23 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

*Potential for frost action* is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

*Risk of corrosion* pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in

installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

## Water Features

Table 24 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

*Hydrologic soil groups* are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

*Water table* refers to a saturated zone in the soil. Table 24 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

*Ponding* is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 24 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and

*frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

*Flooding* is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

*Duration* and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

# Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (USDA, 1998 and 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 25 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Aridisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Calcids, meaning having a calcic or petrocalcic horizon.

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Haplocalcids (*Hapl*, meaning minimal horizonation, plus *calcids*, meaning having a calcic or petrocalcic horizon.

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Haplocalcids.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

## Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (USDA, 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (USDA, 1999) and in “Keys to Soil Taxonomy” (USDA, 1998). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

## Amalia Series

*Map unit(s):* AmC, AmE
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)
*Landform:* outwash fan
*Parent material:* outwash derived from granite, gneiss, and mica schist
*Elevation:* 8,000 to 9,300 feet (2,438 to 2,835 meters)
*Slope:* 3 to 35 percent
*Climatic data:*
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive, frigid Calcidic Haplustalfs

**Typical Pedon**

*Map unit in which located:* Amalia very gravelly coarse sandy loam, 3 to 9 percent slopes
*Location in survey area:* Amalia very gravelly coarse sandy loam; in an area of forest land; USGS Taylor Ranch topographic quadrangle; 37 degrees 7 minutes 57.83 seconds north latitude and 105 degrees 21 minutes 11.69 seconds west longitude; UTM 468,624 meters E, 4,109,655 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 45 percent subrounded gravel and 5 percent subrounded cobbles derived from granite, gneiss, and mica schist

A—0 to 5 inches; brown (7.5YR 4/3) very gravelly coarse sandy loam, dark brown (7.5YR 3/3) moist; 10 percent clay; weak fine granular structure; very friable, soft, slightly sticky, slightly plastic; many very fine roots; 35 percent gravel and 5 percent cobbles; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.
Bt—5 to 11 inches; brown (7.5YR 5/4) very gravelly clay loam, brown (7.5YR 4/3) moist; 28 percent clay; moderate fine subangular blocky structure; friable, slightly hard, moderately sticky, moderately plastic; many very fine roots; common clay films on all faces of peds; 30 percent gravel and 10 percent cobbles; noneffervescent; slightly alkaline (pH 7.6); clear wavy boundary.
Btk—11 to 25 inches; light brown (7.5YR 6/3) very gravelly loam, brown (7.5YR 4/3) moist; 24 percent clay; moderate medium subangular blocky structure; friable, slightly hard, moderately sticky, moderately plastic; many very fine roots; common clay films on all faces of peds; common carbonate, finely disseminated; 30 percent gravel and 15 percent cobbles; strongly effervescent (12 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); gradual wavy boundary.
Bk1—25 to 39 inches; pink (7.5YR 7/3) very gravelly sandy loam, brown (7.5YR 5/3) moist; 10 percent clay; weak fine subangular blocky structure; very friable, soft, slightly sticky, slightly plastic; common very fine roots; many carbonate, finely disseminated; 45 percent gravel and 10 percent cobbles; strongly effervescent (22 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); gradual wavy boundary.
Bk2—39 to 80 inches; pink (7.5YR 7/3) extremely gravelly loamy sand, brown (7.5YR 5/3) moist; 10 percent clay; weak fine subangular blocky; very friable, soft, slightly sticky, slightly plastic; common very fine roots; many carbonate, finely disseminated; 50 percent gravel and 10 percent cobbles; strongly effervescent (17 percent calcium carbonate equivalent); moderately alkaline (pH 8.0).

**Range in Characteristics**

*Soil moisture:*
*Soil moisture regime subclass:* aridic (torric)
*Soil moisture regime class:* ustic
*Seasonal pattern:* The soil moisture control section is affected by snowmelt in early spring and peak precipitation in the form of thunderstorms from June to September.
*Mean annual soil temperature:* 41 to 46 degrees F (5.0 to 7.8 degrees C)
*Mean summer soil temperature:* 63 to 66 degrees F (17.2 to 18.9 degrees C)
*Depth to diagnostic feature(s):* 3 to 12 inches (8 to 30 centimeters) to the argillic horizon; 10 to 30 inches (25 to 76 centimeters) to the calcic horizon
*Thickness of diagnostic feature:* The argillic horizon is 11 to 47 inches (28 to 119 centimeters); the calcic horizon is 12 to 50 inches (30 to 127 centimeters)
*Linear extensibility:* weighted average RV is 1.0 percent
*Surface fragments:* 15 to 45 percent subrounded gravel and 0 to 15 percent subrounded cobbles derived from granite, gneiss, and mica schist

*Particle-size control section (weighted average):*
*Clay content:* 10 to 35 percent
*Sand content:* 40 to 62 percent
*Rock fragment content:* 35 to 60 percent

A horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 4 or 5 dry; 2 or 3 moist
*Chroma:* 2 or 3
*Texture:* very gravelly coarse sandy loam
*Clay content:* 6 to 20 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 52 to 75 percent
*Silt content:* 15 to 40 percent
*Rock fragment content:* 35 to 60 percent total, consisting of 35 to 50 percent indurated gravel and 0 to 10 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 1 mmhos/cm
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 0.5 to 1.5 percent

Bt horizon(s)
*Hue:* 7.5YR or 5YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 3 or 4
*Texture:* very gravelly clay loam, very gravelly loam
*Clay content:* 10 to 35 percent
*Carbonate clay content:* 0 to 3 percent
*Sand content:* 40 to 62 percent
*Silt content:* 28 to 45 percent
*Rock fragment content:* 35 to 60 percent total, consisting of 30 to 50 percent indurated gravel and 5 to 10 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 1 to 5 percent
*Electrical conductivity:* 0 to 1 mmhos/cm
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.0 to 1.0 percent

Btk horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* very gravelly loam, very gravelly sandy loam
*Clay content:* 10 to 26 percent
*Carbonate clay content:* 5 to 10 percent
*Sand content:* 40 to 62 percent
*Silt content:* 28 to 45 percent
*Rock fragment content:* 35 to 60 percent total, consisting of 25 to 45 percent indurated gravel and 10 to 15 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 5 to 17 percent
*Electrical conductivity:* 0 to 1 mmhos/cm
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.0 to 0.5 percent

Bk horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 6 or 7 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand
*Clay content:* 5 to 15 percent
*Carbonate clay content:* 1 to 7 percent
*Sand content:* 52 to 83 percent
*Silt content:* 8 to 35 percent
*Rock fragment content:* 35 to 75 percent total, consisting of 35 to 50 percent indurated gravel and 0 to 25 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 15 to 30 percent
*Electrical conductivity:* 0 to 1 mmhos/cm
*Reaction:* pH 7.9 to 8.4
*Organic matter content:* 0.0 to 0.5 percent

## Angostura Series

*Map unit(s):* Gn
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* mountain slope
*Position on landform:* mountainflank
*Parent material:* colluvium and till derived from diorite and monzonite
*Elevation:* 9,000 to 10,800 feet (2,743 to 3,292 meters)
*Slope:* 20 to 65 percent
*Climatic data:*
*Mean annual precipitation:* 25 to 35 inches (635 to 889 millimeters)
*Mean annual air temperature:* 37 to 40 degrees F. (3.0 to 4.5 degrees C.)
*Frost-free period:* 40 to 70 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive Typic Glossocryalfs

**Typical Pedon**

*Map unit in which located:* Angostura very stony loam, 20 to 65 percent slopes

*Location in survey area:* Angostura very stony loam; in an area of Angostura very stony loam, 20 to 65 percent slopes; in forest land; about 2 miles east of the Costilla County line and south of the Whiskey Creek drainage. T. 32 S., R. 69 W.; USGS El Valle Creek topographic quadrangle; 37 degrees 12 minutes 31.20 seconds north latitude and 105 degrees 7 minutes 48.30 seconds west longitude; UTM 488,457 meters E, 4,118,029.7 meters N, zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 15 percent subrounded stones and 15 percent subrounded cobbles derived from diorite and monzonite

Oi—0 to 1 inch; slightly decomposed plant material; 10 percent cobbles, 10 percent stones, and 15 percent gravel; strongly acid (pH 5.2); abrupt smooth boundary.

E—1 inch to 12 inches; pink (7.5YR 7/3) very stony loam, brown (7.5YR 4/3) moist; moderate fine granular structure; very friable, slightly hard, nonsticky, nonplastic; 10 percent cobbles, 11 percent stones, and 15 percent gravel; noneffervescent; moderately acid (pH 5.6); gradual smooth boundary.

B/E—12 to 23 inches; 60 percent yellowish brown (10YR 5/4) very cobbly clay loam, dark yellowish brown (10YR 4/4) moist, and 40 percent light brownish gray (10YR 6/2) very cobbly loam, dark grayish brown (10YR 4/2) moist; moderate fine subangular blocky structure; very friable, slightly hard, nonsticky, nonplastic; 5 percent stones, 15 percent cobbles and 20 percent gravel; noneffervescent; strongly acid (pH 5.4); gradual smooth boundary.

Bt1—23 to 45 inches; yellowish brown (10YR 5/4) very cobbly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; firm, very hard, moderately sticky, moderately plastic; 35 percent distinct clay films on all faces of peds; 25 percent cobbles and 30 percent gravel; noneffervescent; slightly acid (pH 6.2); clear wavy boundary.

Bt2—45 to 61 inches; brown (10YR 5/3) very cobbly clay loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; firm, very hard, moderately sticky, moderately plastic; 45 percent distinct clay films on all faces of peds; 10 percent stones, 20 percent cobbles, and 29 percent gravel; noneffervescent; slightly acid (pH 6.5); clear wavy boundary.

BC—61 to 72 inches; grayish brown (10YR 5/2) very gravelly loam, dark grayish brown (10YR 4/2) moist; moderate fine subangular blocky structure; friable, hard, slightly sticky, slightly plastic; 10 percent cobbles, 8 percent stones, and 38 percent gravel; noneffervescent; neutral (pH 7.0).

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* udic

*Seasonal pattern:* continuous throughout the year with peak periods in spring and summer

*Mean annual soil temperature:* 38 to 41 degrees F.

*Mean summer soil temperature:* 44 to 46 degrees F.

*Depth to diagnostic feature(s):* 0 to 2 inches to the albic horizon; 10 to 23 inches to the glossic horizon; 18 to 24 inches to the argillic horizon

*Thickness of the argillic horizon:* 30 to 45 inches

*Particle-size control section (weighted average):*

*Clay content:* 20 to 30 percent

*Sand content:* 30 to 60 percent

*Rock fragment content:* 35 to 60 percent

E horizon(s):
*Hue:* 7.5YR or 10YR
*Value:* 6 or 7 dry, 4 or 5 moist
*Chroma:* 2 or 3
*Clay content:* 10 to 20 percent
*Rock fragment content:* 15 to 20 percent gravel, 10 to 20 percent cobbles, and 10 to 20 percent stones derived from diorite and monzonite
*Reaction:* moderately acid or slightly acid
*Organic matter content:* 0.5 to 1.0 percent
*Base saturation:* 50 to 75 percent
*Cation exchange capacity:* 8.6 to 16.6 meq/100 grams

B/E horizon(s):
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry, 4 or 5 moist (B part)
*Value:* 6 or 7 dry, 4 or 5 moist (E part)
*Chroma:* 2 or 3 (E) 3 to 6 (B)
*Clay content:* 15 to 25 percent
*Rock fragment content:* 18 to 25 percent gravel, 15 to 25 percent cobbles, and 2 to 10 percent stones derived from diorite and monzonite
*Reaction:* moderately acid or slightly acid
*Organic matter content:* 0.0 to 0.5 percent
*Base saturation:* 50 to 80 percent
*Cation exchange capacity:* 10.9 to 19.7 meq/100 grams
*Reaction:* pH 5.1 to 7.3
*Organic matter content:* 0.0 to 0.5 percent
*Cation exchange capacity:* 14.2 to 23.3 meq/100 grams

Bt horizon(s):
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry, 4 or 5 moist
*Chroma:* 3 to 6
*Texture:* very cobbly sandy clay loam, very cobbly clay loam
*Clay content:* 20 to 30 percent
*Rock fragment content:* 5 to 10 percent fine gravel, 10 to 20 percent medium and coarse gravel, 15 to 25 percent cobbles, and 0 to 10 percent stones derived from diorite and monzonite
*Reaction:* moderately acid or slightly acid
*Organic matter content:* 0.0 to 0.5 percent
*Base saturation:* 60 to 100 percent
*Cation exchange capacity:* 14.2 to 23.3 meq/100 grams

BC horizon(s):
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry, 4 or 5 moist
*Chroma:* 2 or 3
*Texture:* very gravelly loam, very gravelly sandy clay loam
*Clay content:* 20 to 30 percent
*Rock fragment content:* 8 to 10 percent fine gravel, 15 to 25 percent medium and coarse gravel, 7 to 10 percent cobbles, and 5 to 15 percent stones derived from diorite and monzonite
*Reaction:* slightly acid to slightly alkaline

## Aquic Dystrocryepts Taxon above family

*Map unit(s):* GmE
*Depth class:* very deep
*Drainage class:* poorly drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* cirques
*Position on landform:* mountaintop
*Parent material:* colluvium and till derived from monzonite, and diorite
*Elevation:* 10,500 to 13,000 feet (3,200 to 3,962 meters)
*Slope:* 5 to 30 percent
*Climatic data:*
*Mean annual precipitation:* 30 to 40 inches (762 to 1,016 millimeters)
*Mean annual air temperature:* 30 to 36 degrees F. (-1.0 to 2.0 degrees C.)
*Frost-free period:* 30 to 45 days

*Taxonomic class:* Aquic Dystrocryepts

**Typical Pedon**

*Map unit in which located:* Aquic Dystrocryepts
*Location in survey area:* Aquic Dystrocryepts cobbly mucky loam; in an area of Aquic Dystrocryepts; about 0.6 miles east of the Costilla County line on the Whiskey Creek drainage, T. 32 S., R. 69 W.; USGS El Valle Creek topographic quadrangle; 37 degrees 13 minutes 46.00 seconds north latitude and 105 degrees 8 minutes 46.60 seconds west longitude; UTM 487,023 meters E, 4,120,315 meters N, zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 20 percent gravel, 20 percent cobbles, and 1 percent stones derived from monzonite and diorite

A1—0 to 11 inches; very dark grayish brown (10YR 3/2) cobbly mucky loam, very dark brown (10YR 2/2) moist; moderate very fine granular structure; very friable, soft, nonsticky, nonplastic; many fine to coarse roots throughout; 1 percent stones, 15 percent cobbles, and 10 percent gravel; very strongly acid (pH 4.5); clear wavy boundary.
A2—11 to 20 inches; brown (10YR 4/3) gravelly loam, very dark brown (10YR 2/2) moist; weak medium granular structure; very friable, slightly hard, nonsticky, nonplastic; many fine to coarse roots throughout; 5 percent cobbles and 25 percent gravel; very strongly acid (pH 4.6); clear wavy boundary.
Bw1—20 to 34 inches; brown (10YR 5/3) gravelly loam, dark grayish brown (10YR 4/2) moist; weak very fine subangular blocky structure; friable, slightly hard, nonsticky, nonplastic; many fine and medium roots throughout; 10 percent medium distinct dark yellowish brown (10YR 4/6) moist, masses of oxidized iron throughout; 5 percent cobbles and 20 percent gravel; very strongly acid (pH 5.0); thin ice layer at 30 inches; gradual wavy boundary.
Bw2—34 to 60 inches; brown (10YR 5/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak very fine subangular blocky structure; friable, slightly hard, nonsticky, nonplastic; common very fine and fine roots throughout; 10 percent cobbles and 50 percent gravel; strongly acid (pH 5.3).

**Range in Characteristics**

*Soil moisture:*
*Soil moisture regime subclass:* aquic
*Soil moisture regime class:* udic
*Seasonal pattern:* moist continuously with peak periods from March through September

*Mean annual soil temperature:* 32 to 37 degrees F.
*Depth to diagnostic feature(s):* 18 to 24 inches to redox concentrations; 24 to 36 inches to aquic conditions; 0 inches to the umbric epipedon
*Thickness of the umbric epipedon:* 10 to 25 inches
*Seasonal high water table:* from June through September
*Depth to top:* 24 to 36 inches

*Particle-size control section (weighted average):*
*Clay content:* 10 to 20 percent
*Sand content:* 35 to 60 percent
*Rock fragment content:* 15 to 75 percent

A horizon(s):
*Hue:* 7.5YR or 10YR
*Value:* 3 or 4 dry; 2 or 3 moist
*Chroma:* 1 to 3
*Clay content:* 10 to 20 percent
*Texture:* gravelly sandy loam, very gravelly loam, gravelly loam, cobbly mucky loam
*Rock fragment content:* 0 to 10 percent fine gravel, 5 to 11 percent medium and coarse gravel, 10 to 30 percent cobbles, and 0 to 25 percent stones derived from monzonite, and diorite
*Reaction:* very strongly acid or strongly acid
*Organic matter content:* 1.0 to 10.0 percent
*Base saturation:* 30 to 50 percent

Bw horizon(s):
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 1 to 3
*Texture:* gravelly loam, very gravelly loam, gravelly sandy loam, very gravelly sandy loam
*Clay content:* 5 to 20 percent
*Rock fragment content:* 0 to 28 percent fine gravel, 9 to 37 percent medium and coarse gravel, 0 to 14 percent cobbles, and 0 to 6 percent stones derived from monzonite, and diorite
*Reaction:* very strongly acid or strongly acid
*Organic matter content:* 0.0 to 2.0 percent
*Base saturation:* 30 to 60 percent

## Blanfort Series

*Map unit(s):* BfA, BfD
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Landform:* fan remnants
*Parent material:* slope alluvium over alluvium derived from calcareous sandstone
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Slope:* 0 to 9 percent
*Climatic data:*
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Coarse-loamy, mixed, superactive, frigid Ustic Haplocalcids

### Typical Pedon

*Map unit in which located:* Blanfort fine sandy loam, 3 to 9 percent slopes
Fort Garland USGS topographic quadrangle, NAD83; 37 degrees 28 minutes 0.26 seconds north latitude and 105 degrees 27 minutes 14.77 seconds west longitude; UTM 459,844 meters E, 4,146,748 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 2 percent subrounded indurated gravel derived from calcareous sandstone

A—0 to 2 inches; brown (10YR 4/3) fine sandy loam, dark brown (10YR 3/3) moist; 12 percent clay; weak fine granular structure; very friable, soft, nonsticky, nonplastic; common very fine roots throughout; common very fine dendritic tubular pores; strongly effervescent; slightly alkaline (pH 7.8); abrupt wavy boundary.

Bw1—2 to 7 inches; brown (10YR 5/3) fine sandy loam, dark yellowish brown (10YR 4/4) moist; 14 percent clay; moderate coarse subangular blocky structure; friable, slightly hard, nonsticky, nonplastic; common very fine roots throughout; common very fine dendritic tubular pores; strongly effervescent; moderately alkaline (pH 8.3); clear wavy boundary.

Bw2—7 to 16 inches; pale brown (10YR 6/3) fine sandy loam, dark yellowish brown (10YR 4/4) moist; 14 percent clay; weak coarse subangular blocky structure; very friable, slightly hard, nonsticky, nonplastic; common very fine and medium roots throughout; strongly effervescent; 3 percent calcium carbonate equivalent; moderately alkaline (pH 8.4); gradual wavy boundary.

Bk1—16 to 28 inches; brown (10YR 4/3) fine sandy loam, dark yellowish brown (10YR 4/4) moist; 12 percent clay; weak medium subangular blocky structure; very friable, soft, nonsticky, nonplastic; few very fine roots throughout; common very fine dendritic tubular pores; common fine irregular carbonate masses; strongly effervescent; 15 percent calcium carbonate equivalent; moderately alkaline (pH 8.4); gradual wavy boundary.

Bk2—28 to 56 inches; pale brown (10YR 6/3) fine sandy loam, dark yellowish brown (10YR 4/4) moist; 12 percent clay; weak medium subangular blocky structure; friable, moderately hard, nonsticky, nonplastic; common very fine dendritic tubular pores; common fine irregular carbonate masses; violently effervescent; 5 percent calcium carbonate equivalent; moderately alkaline (pH 8.4); clear wavy boundary.

BC—56 to 80 inches; brown (10YR 5/3) fine sandy loam, dark yellowish brown (10YR 4/4) moist; 15 percent clay; weak fine subangular blocky structure; firm, hard, nonsticky, nonplastic; 2 percent cobbles and 5 percent gravel; strongly effervescent; 1 percent calcium carbonate equivalent; moderately alkaline (pH 8.4).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* The soil moisture control section is affected by peak precipitation in late summer, early fall. The soil is driest from November to March. The soil has the potential to be moist from April to October.

*Mean annual soil temperature:* 41 to 46 degrees F (5 to 7.8 degrees C)

*Mean summer soil temperature:* 63 to 66 degrees F (17.2 to 18.9 degrees C)

*Depth to diagnostic feature(s):* 2 to 10 inches (5 to 25 centimeters) to the cambic horizon; 10 to 40 inches (51 to 102 centimeters) to the calcic horizon

*Thickness of diagnostic feature:* The ochric epipedon is 2 to 7 inches (5 to 18 centimeters); the cambic horizon is 10 to 18 inches (25 to 46 centimeters); the calcic horizon is 35 to 49 inches (89 to 124 centimeters)
*Surface fragments:* 0 to 10 percent subrounded indurated gravel derived from calcareous sandstone

*Particle-size control section (weighted average):*
*Clay content:* 8 to 18 percent
*Sand content:* 52 to 70 percent
*Silt content:* 12 to 40 percent
*Rock fragment content:* 0 to 5 percent indurated gravel

A horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 3 or 4
*Texture:* fine sandy loam
*Clay content:* 5 to 15 percent
*Sand content:* 52 to 70 percent
*Silt content:* 15 to 35 percent
*Rock fragment content:* 0 to 5 percent indurated gravel derived from calcareous sandstone
*Calcium carbonate equivalent:* 0 to 2 percent
*Reaction:* pH 7.4 to 7.8

Bw horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 4 to 6 dry; 3 to 5 moist
*Chroma:* 3 or 4
*Texture:* fine sandy loam, sandy loam
*Clay content:* 8 to 18 percent
*Sand content:* 52 to 70 percent
*Silt content:* 15 to 35 percent
*Rock fragment content:* 0 to 5 percent indurated gravel derived from calcareous sandstone
*Calcium carbonate equivalent:* 0 to 5 percent
*Reaction:* pH 7.9 to 8.4

Bk horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* fine sandy loam, sandy loam
*Clay content:* 5 to 18 percent
*Sand content:* 52 to 70 percent
*Silt content:* 15 to 35 percent
*Rock fragment content:* 0 to 15 percent total, consisting of 0 to 10 percent indurated gravel and 0 to 5 percent indurated cobbles derived from calcareous sandstone
*Calcium carbonate equivalent:* 2 to 20 percent
*Reaction:* pH 7.9 to 8.4

BC or C horizon(s): (if present)
*Hue:* 7.5YR to 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* fine sandy loam, sandy loam

*Clay content:* 5 to 18 percent
*Sand content:* 52 to 70 percent
*Silt content:* 15 to 35 percent
*Rock fragment content:* 0 to 15 percent total, consisting of 0 to 10 percent indurated gravel and 0 to 5 percent indurated cobbles derived from calcareous sandstone
*Calcium carbonate equivalent:* 2 to 15 percent
*Reaction:* pH 7.9 to 8.4

## Comodore Series

*Map unit(s):* CuF
*Depth class:* shallow
*Drainage class:* well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* mountain slopes
*Parent material:*colluvium over residuum derived from granite, gneiss, and mica schist
*Elevation:* 8,100 to 10,500 feet (2,438 to 3,200 meters)
*Slope:* 20 to 65 percent
*Climatic data:*
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F (3.0 to 5.0 degrees C)
*Frost-free period:* 75 to 90 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive, frigid Aridic Lithic Haplustolls

**Typical Pedon**

*Map unit in which located:* Comodore-Uracca-Rock outcrop complex, 5 to 65 percent slopes
*Location in survey area:* Comodore very cobbly loam; USGS Ojito topographic quadrangle, NAD83; 37 degrees 18 minutes 20.37 seconds north latitude and 105 degrees 19 minutes 35.85 seconds west longitude; UTM 471,055 meters E, 4,128,831 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 50 percent subrounded indurated gravel and 25 percent subrounded indurated cobbles derived from granite, gneiss, and mica schist

A—0 to 5 inches; brown (7.5YR 4/3) very cobbly loam, dark brown (7.5YR 3/2) moist; 18 percent clay; weak fine granular structure; friable, soft, slightly sticky, slightly plastic; common very fine and fine roots throughout; common very fine irregular pores; 30 percent gravel and 25 percent cobbles; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.
Bw—5 to 16 inches; brown (7.5YR 5/3) extremely cobbly loam, dark brown (7.5YR 3/3) moist; 22 percent clay; weak fine subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; common very fine and fine roots throughout; common very fine dendritic tubular pores; 35 percent gravel and 35 percent cobbles; noneffervescent; neutral (pH 7.2); abrupt irregular boundary.
R—16; fractured diorite bedrock; irregular carbonate masses around rock fragments.

**Range in Characteristics**

*Soil moisture:*
*Soil moisture regime subclass:* aridic (torric)
*Soil moisture regime class:* ustic
*Seasonal pattern:* The soil moisture control section is affected by snowmelt in early spring and peak precipitation is in the form of thunderstorms from June to September.

*Mean annual soil temperature:* 41 to 46 degrees F (5 to 7.8 degrees C)
*Mean summer soil temperature:* 63 to 66 degrees F (17.2 to 18.9 degrees C)
*Depth to restrictive feature:* 10 to 20 inches (25 to 51 centimeters) to lithic contact
*Thickness of the mollic epipedon:* 10 to 16 inches (25 to 40 centimeters)
*Linear extensibility:* weighted average RV is 0.8 percent
*Surface fragments:* 20 to 60 percent mixed subrounded indurated gravel and 15 to 50 percent mixed subrounded indurated cobbles derived from granite, gneiss, and mica schist

*Particle-size control section (weighted average):*
- *Clay content:* 20 to 27 percent
- *Sand content:* 32 to 63 percent
- *Silt content:* 15 to 50 percent
- *Rock fragment content:* 35 to 75 percent

A horizon(s)
- *Hue:* 7.5YR to 10YR
- *Value:* 4 or 5 dry; 2 or 3 moist
- *Chroma:* 2 or 3
- *Texture:* very cobbly loam
- *Clay content:* 12 to 26 percent
- *Carbonate clay content:* 0 to 1 percent
- *Sand content:* 32 to 63 percent
- *Silt content:* 15 to 50 percent
- *Rock fragment content:* 35 to 55 percent total, consisting of 20 to 30 percent mixed indurated gravel and 15 to 25 percent mixed indurated cobbles derived from granite, gneiss, and mica schist
- *Calcium carbonate equivalent:* 0 to 2 percent
- *Electrical conductivity:* 0 to 2 mmhos/cm
- *Reaction:* pH 6.6 to 7.8
- *Organic matter content:* 1.0 to 2.0 percent

Bw horizon(s)
- *Hue:* 7.5YR to 10YR
- *Value:* 5 or 6 dry; 3 or 4 moist
- *Chroma:* 3 or 4
- *Texture:* extremely cobbly loam, very cobbly loam
- *Clay content:* 20 to 26 percent
- *Carbonate clay content:* 0 to 1 percent
- *Sand content:* 32 to 63 percent
- *Silt content:* 15 to 50 percent
- *Rock fragment content:* 35 to 85 percent total, consisting of 25 to 50 percent indurated gravel and 10 to 35 percent indurated cobbles derived from granite, gneiss, and mica schist
- *Calcium carbonate equivalent:* 0 to 2 percent
- *Electrical conductivity:* 0 to 2 mmhos/cm
- *Reaction:* pH 6.6 to 7.3
- *Organic matter content:* 1.0 to 1.5 percent

## Cososa Series

*Map unit(s):*CsA, CsD
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)




**Figure 8.—Typical profile of Cososa loamy sand, 0 to 3 percent slopes.**

*Landform:* outwash plain, outwash fan, and outwash terrace
*Parent material:* outwash derived from granite, gneiss, and mica schist
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Slope:* 0 to 9 percent
*Climatic data:*
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Coarse-loamy, mixed, superactive, frigid Typic Haplocalcids

**Typical Pedon**

*Map unit in which located:* Cososa loamy sand, 0 to 3 percent slopes
*Location in survey area:* Cososa loamy sand; in an area of Cososa loamy sand, 0 to 3 percent slopes; in artificial cover; USGS topographic quadrangle, NAD83; 37 degrees 21 minutes 36.00 seconds north latitude and 105 degrees 42 minutes 22.00 seconds west longitude; UTM 437,447 meters E, 4,134,870 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 10 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

A—0 to 6 inches; pale brown (10YR 6/3) loamy sand, brown (10YR 5/3) moist; 5 percent clay; weak fine granular structure; very friable, soft, slightly sticky, slightly plastic; many very fine and fine roots throughout; many very fine and fine low continuity interstitial pores; 5 percent gravel; noneffervescent; slightly alkaline (pH 7.7); clear smooth boundary.

Bw—6 to 14 inches; yellowish brown (10YR 5/4) gravelly fine sandy loam, dark yellowish brown (10YR 4/4) moist; 14 percent clay; weak medium subangular blocky structure, and weak fine subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; common very fine and fine roots throughout; common very fine and fine low continuity dendritic tubular pores; 17 percent gravel; noneffervescent; slightly alkaline (pH 7.8); clear wavy boundary.

Bk1—14 to 21 inches; light yellowish brown (10YR 6/4) gravelly loamy sand, yellowish brown (10YR 5/4) moist; 10 percent clay; weak fine subangular blocky structure, and weak medium subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; common very fine and fine roots throughout; common very fine and fine low continuity dendritic tubular pores; few fine irregular carbonate masses in matrix; 16 percent gravel; noneffervescent (1 percent calcium carbonate); slightly alkaline (pH 8.2); gradual irregular boundary.

Bk2—21 to 49 inches; pink (7.5YR 7/4) gravelly sandy clay loam, light brown (7.5YR 6/4) moist; 21 percent clay; weak fine subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; few very fine roots throughout; common very fine and fine low continuity vesicular and dendritic tubular pores; common threadlike carbonate masses in matrix and many very coarse irregular carbonate masses around rock fragments; 20 percent gravel; violently effervescent (11 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear wavy boundary.

2Bk1—49 to 57 inches; pale brown (10YR 6/3) gravelly loamy sand, brown (10YR 5/3) moist; 8 percent clay; single grain; loose, nonsticky, nonplastic; few very fine roots throughout; common fine low continuity irregular pores; common threadlike carbonate masses in matrix and many very coarse irregular carbonate masses on bottom of rock fragments; 24 percent gravel; strongly effervescent (2 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear wavy boundary.

2Bk2—57 to 74 inches; light yellowish brown (10YR 6/4) very gravelly coarse sand, yellowish brown (10YR 5/4) moist; 4 percent clay; single grain; loose, nonsticky, nonplastic; few very fine roots throughout; common fine low continuity irregular pores; common threadlike carbonate masses in matrix and many very coarse irregular carbonate masses on bottom of rock fragments; 53 percent gravel; strongly effervescent (2 percent calcium carbonate equivalent); moderately alkaline (pH 8.1); clear wavy boundary.

2Bk3—74 to 80 inches; white (10YR 8/1) sandy loam, light gray (10YR 7/2) moist; 12 percent clay; massive; firm, hard, slightly sticky, slightly plastic; common very fine and fine low continuity vesicular pores; common threadlike carbonate masses in matrix and many very coarse irregular carbonate masses on bottom of rock fragments; 13 percent gravel; violently effervescent (20 percent calcium carbonate equivalent); moderately alkaline (pH 8.1)

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* Precipitation peaks in July and August; occurring mostly as intense summer thunderstorms

*Mean annual soil temperature:* 41 to 46 degrees F(5.0 to 8 degrees C)

*Mean summer soil temperature:* 59 to 63 degrees F(15.0 to 17 degrees C)

*Depth to diagnostic features:* 4 to 10 inches (10 to 25 centimeters) to the cambic horizon and 6 to 25 inches (15 to 64 centimeters) to the calcic horizon

*Linear extensibility:* weighted average RV is 1.1 percent

*Surface fragments:* 0 to 20 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

*Particle-size control section (weighted average):*

*Clay content:* 8 to 17 percent

*Sand content:* 55 to 82 percent

*Silt content:* 1 to 37 percent

*Rock fragment content:* 15 to 35 percent subrounded gravel

A horizon(s)

*Hue:* 7.5YR or 10YR

*Value:* 5 to 7 dry; 4 to 6 moist

*Chroma:* 3 to 5

*Texture:* loamy sand

*Clay content:* 0 to 10 percent

*Carbonate clay content:* 0 to 1 percent

*Sand content:* 75 to 88 percent

*Silt content:* 5 to 25 percent

*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist

*Calcium carbonate equivalent:* 0 to 3 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Sodium adsorption ratio:* 0 to 4

*Reaction:* pH 7.4 to 8.4

*Organic matter content:* 0.0 to 1.0 percent

Bw horizon(s)

*Hue:* 7.5YR or 10YR

*Value:* 4 to 6 dry; 3 to 5 moist

*Chroma:* 3 to 5

*Texture:* gravelly fine sandy loam

*Clay content:* 10 to 20 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 55 to 82 percent
*Silt content:* 5 to 30 percent
*Rock fragment content:* 15 to 35 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 3 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Sodium adsorption ratio:* 0 to 4
*Reaction:* pH 7.4 to 7.8
*Organic matter content:* 0.0 to 0.5 percent

Bk horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 6 to 8 dry; 5 to 7 moist
*Chroma:* 3 to 5
*Texture:* gravelly loamy sand, gravelly sandy clay loam
*Clay content:* 5 to 35 percent
*Carbonate clay content:* 0 to 11 percent
*Sand content:* 45 to 87 percent
*Silt content:* 0 to 28 percent
*Rock fragment content:* 15 to 35 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 20 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Sodium adsorption ratio:* 0 to 7
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.0 to 0.5 percent

2Bk horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 to 8 dry; 5 to 7 moist
*Chroma:* 1 to 4
*Texture:* gravelly loamy sand, very gravelly coarse sand, sandy loam
*Clay content:* 0 to 20 percent
*Carbonate clay content:* 0 to 6 percent
*Sand content:* 55 to 100 percent
*Silt content:* 0 to 30 percent
*Rock fragment content:* 0 to 60 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 25 percent
*Electrical conductivity:* 2 to 5 mmhos/cm
*Sodium adsorption ratio:* 0 to 9
*Reaction:* pH 7.9 to 8.4
*Organic matter content:* 0.0 to 0.5 percent

## Costilla Series

*Map unit(s):* CtA
*Depth class:* very deep
*Drainage class:* somewhat excessively drained
*Slowest permeability:* 6.0 to 20 in./hr. (rapid)
*Landform:* alluvial flats
*Parent material:* sandy alluvium derived from granite, gneiss, and mica schist
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)

*Slope:* 0 to 3 percent
*Climatic data:*
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Sandy, mixed, frigid Typic Haplocalcids

**Typical Pedon**

*Map unit in which located:* Costilla loamy sand, 0 to 3 percent slopes
*Location in survey area:* Costilla loamy sand; Lasauses NE USGS topographic quadrangle, NAD83; 37 degrees 20 minutes 12.14 seconds north latitude and 105 degrees 39 minutes 9.03 seconds west longitude; UTM 442,199 meters E, 4,132,425 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 10 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

A1—0 to 2 inches; brown (7.5YR 5/3) loamy sand, dark brown (7.5YR 3/3) moist; 4 percent clay; single grain; very friable, soft, nonsticky, nonplastic; common very fine and fine roots throughout; common very fine irregular pores; 10 percent gravel; noneffervescent; neutral (pH 7.2); clear smooth boundary.
A2—2 to 7 inches; brown (7.5YR 5/3) loamy sand, brown (7.5YR 4/3) moist; 6 percent clay; weak fine subangular blocky structure; very friable, soft, nonsticky, nonplastic; common very fine and fine roots throughout; common very fine irregular pores; 10 percent gravel; noneffervescent; slightly alkaline (pH 7.4); clear wavy boundary.
Bw1—7 to 14 inches; brown (7.5YR 5/3) gravelly loamy sand, brown (7.5YR 4/3) moist; 8 percent clay; weak fine subangular blocky structure, and weak medium subangular blocky structure; very friable, slightly hard, nonsticky, nonplastic; common very fine and fine roots throughout; common very fine irregular pores; 15 percent gravel; noneffervescent; slightly alkaline (pH 7.4); gradual wavy boundary.
Bw2—14 to 32 inches; brown (7.5YR 5/3) gravelly loamy sand, brown (7.5YR 4/3) moist; 8 percent clay; weak fine subangular blocky structure, and weak medium subangular blocky structure; very friable, slightly hard, nonsticky, nonplastic; common very fine roots throughout; common very fine irregular pores; 20 percent gravel; noneffervescent; slightly alkaline (pH 7.4); clear irregular boundary.
Bk1—32 to 37 inches; light brown (7.5YR 6/3) gravelly loamy sand, brown (7.5YR 5/3) moist; 8 percent clay; weak medium subangular blocky structure, and weak fine subangular blocky structure; very friable, slightly hard, nonsticky, nonplastic; common very fine roots throughout; common very fine irregular pores; few irregular carbonate masses around rock fragments and many fine irregular carbonate masses in matrix; 20 percent gravel; strongly effervescent; 15 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); clear irregular boundary.
Bk2—37 to 80 inches; brown (7.5YR 5/3) gravelly sand, brown (7.5YR 4/3) moist; 2 percent clay; single grain; very friable, loose, nonsticky, nonplastic; common very fine roots throughout; common very fine irregular pores; common irregular carbonate masses around rock fragments; 20 percent gravel; slightly effervescent; 5 percent calcium carbonate equivalent; moderately alkaline (pH 8.0).

**Range in Characteristics**

*Soil moisture:*
*Soil moisture regime subclass:* typic
*Soil moisture regime class:* aridic (torric)
*Seasonal pattern:* The soil moisture control section is affected by peak precipitation in late summer and early fall. The soil is driest from November to March. The soil has the potential to be moist from April to October.
*Mean annual soil temperature:* 41 to 46 degrees F (5 to 7.8 degrees C)
*Mean summer soil temperature:* 59 to 63 degrees F (15 to 17.2 degrees C)
*Depth to diagnostic feature(s):* 20 to 40 inches (51 to 102 centimeters) to the calcic horizon
*Thickness of diagnostic feature:* The calcic horizon is 27 to 60 inches (69 to 152 centimeters)
*Linear extensibility:* weighted average RV is 0.2 percent
*Surface fragments:* 0 to 15 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

*Particle-size control section (weighted average):*
*Clay content:* 4 to 12 percent
*Sand content:* 70 to 88 percent
*Silt content:* 0 to 26 percent
*Rock fragment content:* 15 to 35 percent indurated gravel

A horizon(s)
*Hue:* 7.5YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 3 or 4
*Texture:* loamy sand
*Clay content:* 1 to 12 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 70 to 87 percent
*Silt content:* 5 to 28 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 0.2 to 1.0 percent

Bw horizon(s)
*Hue:* 7.5YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 3 or 4
*Texture:* gravelly loamy sand
*Clay content:* 4 to 12 percent
*Carbonate clay content:* 0 to 3 percent
*Sand content:* 80 to 88 percent
*Silt content:* 4 to 15 percent
*Rock fragment content:* 15 to 35 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 0.0 to 0.5 percent

Bk horizon(s)
*Hue:* 7.5YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* gravelly loamy sand, gravelly sand
*Clay content:* 0 to 10 percent
*Carbonate clay content:* 0 to 6 percent
*Sand content:* 85 to 98 percent
*Silt content:* 2 to 15 percent
*Rock fragment content:* 15 to 35 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 5 to 14 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.0 to 0.5 percent

## Cumulic Cryaquolls

*Map unit(s):* Aq
*Depth class:* very deep
*Drainage class:* poorly drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* ephemeral streams, flood plains
*Parent material:* fine-silty alluvium over gravelly glaciofluvial deposits derived from granite
*Elevation:* 9,000 to 12,000 feet (2,743 to 3,658 meters)
*Slope:* 0 to 2 percent
*Climatic data:*
*Mean annual precipitation:* 16 to 25 inches (406 to 635 millimeters)
*Mean annual air temperature:* 34 to 41 degrees F. (1.0 to 5.0 degrees C.)
*Frost-free period:* 40 to 70 days

*Taxonomic class:*Cumulic Cryaquolls

**Typical Pedon**

*Map unit in which located:* Cumulic Cryaquolls
*Location in survey area:* Cumulic Cryaquolls; Just below La Veta Pass near work shed in open field along service road to Paradise Acres; La Veta Pass USGS topographic quadrangle, NAD83; UTM 480,486 meters E, 4,162,614 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)

A1—0 to 6 inches; very dark gray (10YR 3/1) silt loam, black (10YR 2/1) moist; 19 percent clay; moderate medium subangular blocky structure; friable, moderately hard, nonsticky, nonplastic; common very fine and fine roots throughout; noneffervescent; neutral (pH 7.3); clear wavy boundary.
A2—6 to 20 inches; very dark gray (10YR 3/1) loam, black (10YR 2/1) moist; 20 percent clay; moderate medium subangular blocky structure; firm, hard, slightly sticky, slightly plastic; common very fine and fine roots throughout; noneffervescent; neutral (pH 7.3); clear smooth boundary.
AC—20 to 27 inches; very dark gray (10YR 3/1) loam, black (10YR 2/1) moist; 20 percent clay; weak coarse subangular blocky structure; firm, very hard, slightly sticky, slightly plastic; common very fine roots throughout; 5 percent gravel; noneffervescent; neutral (pH 7.3); clear wavy boundary.

C—27 to 33 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; 18 percent clay; massive; firm, very hard, slightly sticky, slightly plastic; 30 percent gravel; noneffervescent; neutral (pH 7.3); gradual wavy boundary.
2C—33 to 80 inches; brown (10YR 4/3) gravel, dark grayish brown (10YR 4/2); 12 percent clay; massive; firm, hard, nonsticky, nonplastic; 90 percent gravel; noneffervescent; neutral (pH 7.3).

**Range in Characteristics**

*Soil moisture:*
*Soil moisture regime subclass:* typic
*Soil moisture regime class:* aquic
*Seasonal pattern:* The soil moisture control section is affected by snowmelt in early spring and peak precipitation occurring in the form of thunderstorms from June to September
*Mean annual soil temperature:* 34 to 44 degrees F (1.1 to 6.7 degrees C)
*Mean summer soil temperature:* 42 to 48 degrees F (5.6 to 8.9 degrees C)
*Depth to restrictive feature:* 20 to 40 inches (51 to 102 centimeters) to abrupt textural change
*Depth to diagnostic feature(s):* 20 to 40 inches (51 to 102 centimeters) to aquic conditions and endosaturation
*Thickness of diagnostic feature:* The mollic epipedon is over 24 inches (61 centimeters)
*Linear extensibility:* weighted average RV is 1.7 percent
*Seasonal high water table:* in January, and from March through August
*Depth to top:* 0 to 6 inches (0 to 15 centimeters)

*Particle-size control section (weighted average):*
*Clay content:* 12 to 24 percent
*Sand content:* 30 to 52 percent
*Silt content:* 24 to 58 percent
*Rock fragment content:* 0 to 35 percent indurated gravel

A horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 3 or 4 dry; 2 or 3 moist
*Chroma:* 1 or 2
*Texture:* silt loam and loam
*Clay content:* 10 to 26 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 10 to 52 percent
*Silt content:* 28 to 70 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 1 mmhos/cm
*Reaction:* pH 6.6 to 7.3
*Organic matter content:* 2.0 to 10.0 percent

AC horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 3 or 4 dry; 2 or 3
*Chroma:* 1 or 2
*Texture:* loam
*Clay content:* 10 to 26 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 30 to 52 percent

*Silt content:* 28 to 50 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 1 mmhos/cm
*Reaction:* pH 6.6 to 7.3
*Organic matter content:* 1.5 to 3.0 percent

C horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 2 or 3
*Texture:* gravelly loam
*Clay content:* 10 to 26 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 30 to 52 percent
*Silt content:* 28 to 50 percent
*Rock fragment content:* 15 to 35 percent indurated gravel derived from granite
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 1 mmhos/cm
*Reaction:* pH 6.6 to 7.3
*Organic matter content:* 1.0 to 2.0 percent

2C horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 2 or 3
*Texture:* extremely gravelly sandy loam, gravel, extremely gravelly loam
*Clay content:* 10 to 20 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 45 to 75 percent
*Silt content:* 20 to 50 percent
*Rock fragment content:* 75 to 95 percent indurated gravel derived from granite
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 1 mmhos/cm
*Reaction:* pH 6.6 to 7.3
*Organic matter content:* 0.5 to 1.5 percent

## Culebra Series

*Map unit(s):* UrF
*Depth class:* shallow
*Drainage class:* well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Landform:* mountain slopes
*Parent material:* colluvium over residuum weathered from sandstone
*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)
*Slope:* 3 to 50 percent
*Climatic data:*
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive, frigid Lithic Calciustepts

**Typical Pedon**

*Map unit in which located:* Uracca-Culebra complex, 5 to 50 percent slopes
*Location in survey area:* Culebra very gravelly coarse sandy loam; in an area of Uracca-Culebra complex, 5 to 50 percent slopes in shrub cover, 5 to 65 percent slopes; Trinchera Ranch USGS topographic quadrangle, NAD83; 37 degrees 24 minutes 20.61 seconds north latitude and 105 degrees 18 minutes 44.89 seconds west longitude; UTM 472,346 meters E, 4,139,928 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* subangular indurated 15 percent gravel, 15 percent cobbles, and 2 percent stones derived from sandstone

A—0 to 3 inches; brown (7.5YR 4/3) very gravelly coarse sandy loam, dark brown (7.5YR 3/2) moist; 12 percent clay; weak fine granular structure; friable, soft, nonsticky, nonplastic; common very fine and medium roots throughout; calcium carbonate coatings (relict) on rock fragments; 35 percent gravel and 5 percent cobbles; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.
Bk—3 to 11 inches; light brown (7.5YR 6/3) very gravelly coarse sandy loam, dark brown (7.5YR 4/3) moist; 12 percent clay; weak fine granular structure; friable, soft, nonsticky, nonplastic; common very fine and medium roots throughout; common calcium carbonate coatings on bottom surface of rock fragments and few fine threadlike carbonate masses; 45 percent gravel and 10 percent cobbles; strongly effervescent; 15 percent calcium carbonate equivalent; moderately alkaline (pH 7.9); abrupt irregular boundary.
R—11 inches; fractured sandstone bedrock; calcium carbonate coatings on bedrock.

**Range in Characteristics**

*Soil moisture:*
*Soil moisture regime subclass:* aridic (torric)
*Soil moisture regime class:* ustic
*Seasonal pattern:* The soil moisture control section is affected by snowmelt in early spring and peak precipitation occurring in the form of thunderstorms from June to September.
*Mean annual soil temperature:* 41 to 46 degrees F (5 to 7.8 degrees C)
*Mean summer soil temperature:* 63 to 66 degrees F (17.2 to 18.9 degrees C)
*Depth to restrictive feature:* 10 to 20 inches (25 to 51 centimeters) to lithic bedrock
*Depth to diagnostic feature(s):* 2 to 8 inches (5 to 20 centimeters) to the calcic horizon
*Linear extensibility:* weighted average RV is 0.4 percent
*Surface fragments:* 10 to 40 percent subangular indurated gravel, 5 to 25 percent subangular indurated cobbles, and 0 to 5 percent subangular indurated stones derived from sandstone

*Particle-size control section (weighted average):*
*Clay content:* 5 to 18 percent
*Sand content:* 65 to 90 percent
*Rock fragment content:* 35 to 90 percent indurated gravel and cobbles

A horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 2 or 3
*Texture:* very gravelly coarse sandy loam
*Clay content:* 8 to 18 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 52 to 75 percent
*Silt content:* 10 to 30 percent

*Rock fragment content:* 35 to 60 percent total, consisting of 35 to 50 percent indurated gravel and 0 to 10 percent indurated cobbles derived from sandstone
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 0.5 to 1.0 percent

Bk horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 5 or 6 dry; 3 to 5 moist
*Chroma:* 2 or 3
*Texture:* extremely gravelly loamy coarse sand, very gravelly coarse sandy loam, very cobbly coarse sandy loam
*Clay content:* 5 to 18 percent
*Carbonate clay content:* 3 to 8 percent
*Sand content:* 65 to 90 percent
*Silt content:* 5 to 30 percent
*Rock fragment content:* 35 to 90 percent total, consisting of 35 to 70 percent indurated gravel and 0 to 20 percent indurated cobbles derived from sandstone
*Calcium carbonate equivalent:* 5 to 20 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.9 to 8.4
*Organic matter content:* 0.0 to 0.5 percent

## Durreo Series

*Map unit(s):* DrD
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Landform:* hills
*Position on landform:* summits, backslopes
*Parent material:* slope alluvium derived from basalt, andesite, and rhyolite
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Slope:* 1 to 9 percent
*Climatic data:*
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive, frigid Typic Haplocalcids

**Typical Pedon**

*Map unit in which located:* Durreo gravelly fine sandy loam, 1 to 9 percent slopes
*Location in survey area:* Durreo gravelly fine sandy loam; Blanca SE USGS topographic quadrangle: NAD83; 37 degrees 12 minutes 8.67 seconds north latitude and 105 degrees 35 minutes 40.60 seconds west longitude; UTM 447,856 meters E, 4,124,013 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 25 percent subangular indurated gravel and 5 percent subangular indurated cobbles derived from basalt, andesite, and rhyolite

A—0 to 6 inches; brown (7.5YR 5/3) gravelly fine sandy loam, dark brown (7.5YR 3/3) moist; 14 percent clay; weak fine granular structure; very friable, soft, nonsticky, nonplastic; common very fine and few fine roots throughout; common very fine

vesicular pores; 20 percent gravel and 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bk1—6 to 14 inches; light brown (7.5YR 6/3) very cobbly fine sandy loam, brown (7.5YR 4/3) moist; 18 percent clay; weak fine subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; common very fine and few fine roots throughout; common very fine dendritic tubular pores; few irregular carbonate masses around rock fragments and common fine irregular carbonate masses on faces of peds; 25 percent gravel and 18 percent cobbles; strongly effervescent; 15 percent calcium carbonate equivalent; moderately alkaline (pH 8.4); clear wavy boundary.

Bk2—14 to 34 inches; pink (7.5YR 7/3 ) very cobbly fine sandy loam, brown (7.5YR 5/4) moist; 16 percent clay; weak medium subangular blocky structure; friable, slightly hard, slightly sticky, nonplastic; common very fine roots throughout; common very fine dendritic tubular pores; few irregular carbonate masses around rock fragments and many fine irregular carbonate masses in matrix; 25 percent gravel and 18 percent cobbles; violently effervescent; 26 percent calcium carbonate equivalent; strongly alkaline (pH 8.6); gradual wavy boundary.

Bk3—34 to 80 inches; pink (7.5YR 7/3) very cobbly sandy loam, brown (7.5YR 5/4) moist; 14 percent clay; weak medium subangular blocky structure; friable, slightly hard, slightly sticky, nonplastic; common very fine irregular pores; few irregular carbonate masses around rock fragments and many fine irregular carbonate masses in matrix; 25 percent gravel and 18 percent cobbles; violently effervescent; 40 percent calcium carbonate equivalent; strongly alkaline (pH 8.8).

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* The soil moisture control section is affected by peak precipitation in late summer and early fall. The soil is driest from November to March. The soil has the potential to be moist from April to October.

*Mean annual soil temperature:* 41 to 46 degrees F (5 to 7.8 degrees C)

*Mean summer soil temperature:* 59 to 63 degrees F (15 to 17.2 degrees C)

*Depth to diagnostic feature(s):* 4 to 8 inches (10 to 20 centimeters) to the calcic horizon

*Thickness of diagnostic feature:* The ochric epipedon is 2 to 7 inches (5 to 18 centimeters); the calcic horizon is 72 to 76 inches (183 to 193 centimeters)

*Linear extensibility:* weighted average RV is 0.6 percent

*Surface fragments:* 15 to 35 percent subangular indurated gravel and 0 to 15 percent subangular indurated cobbles derived from basalt, andesite, and rhyolite

*Particle-size control section (weighted average):*

*Clay content:* 5 to 18 percent

*Sand content:* 52 to 70 percent

*Silt content:* 12 to 48 percent

*Rock fragment content:* 25 to 50 percent subangular gravel and 10 to 35 percent cobbles

A horizon(s)

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry; 3 or 4 moist

*Chroma:* 2 or 3

*Texture:* gravelly fine sandy loam

*Clay content:* 5 to 18 percent

*Carbonate clay content:* 1 to 3 percent

*Sand content:* 60 to 75 percent
*Silt content:* 10 to 35 percent
*Rock fragment content:* 15 to 35 percent total, consisting of 15 to 25 percent indurated gravel and 0 to 10 percent indurated cobbles derived from basalt, andesite, and rhyolite
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Sodium adsorption ratio:* 0 to 1
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 1.0 to 2.0 percent

Bk horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 to 7 dry; 3 to 5 moist
*Chroma:* 3 or 4
*Texture:* very cobbly fine sandy loam, very cobbly sandy loam, very gravelly sandy loam, extremely cobbly sandy loam
*Clay content:* 5 to 18 percent
*Carbonate clay content:* 2 to 15 percent
*Sand content:* 52 to 75 percent
*Silt content:* 14 to 35 percent
*Rock fragment content:* 35 to 85 percent total, consisting of 20 to 50 percent indurated gravel and 15 to 35 percent indurated cobbles derived from basalt, andesite, and rhyolite
*Calcium carbonate equivalent:* 15 to 45 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Sodium adsorption ratio:* 0 to 1
*Reaction:* pH 7.8 to 9.0
*Organic matter content:* 0.0 to 1.0 percent

## Eastdale Series

*Map unit(s):* EaA
*Depth class:* very deep
*Drainage class:* poorly drained
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)
*Landform:* flood plains
*Parent material:* fine-loamy alluvium derived from granite, gneiss, and mica schist
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Slope:* 0 to 1 percent
*Climatic data:*
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Fine-loamy, mixed, superactive, frigid Cumulic Endoaquolls

**Typical Pedon**

*Map unit in which located:* Eastdale loam, 0 to 1 percent slopes
*Location in survey area:* Eastdale loam; Lasauses NE USGS topographic quadrangle: Lasaues NE, NAD83; 37 degrees 21 minutes 3.61 seconds north latitude and 105 degrees 41 minutes 36.50 seconds west longitude; UTM 438,582 meters E, 4,134,037 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)

A—0 to 5 inches; very dark grayish brown (10YR 3/2) loam, very dark brown (10YR 2/2) moist; 26 percent clay; weak fine granular structure; friable, soft, slightly sticky, slightly plastic; common very fine and fine roots throughout; common very fine irregular pores; noneffervescent; moderately alkaline (pH 8.0); clear smooth boundary.

By—5 to 15 inches; very dark gray (10YR 3/1) clay loam, black (10YR 2/1) moist; 34 percent clay; moderate fine subangular blocky structure; friable, hard, moderately sticky, moderately plastic; common very fine and fine roots throughout; common very fine dendritic tubular pores; few fine threadlike gypsum masses; slightly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Bkg1—15 to 30 inches; dark gray (10YR 4/1) clay loam, very dark brown (10YR 2/2) moist; 32 percent clay; moderate medium subangular blocky structure; friable, hard, moderately sticky, moderately plastic; common very fine and fine roots throughout; common very fine dendritic tubular pores; 1 percent prominent strong brown (7.5YR 5/6), dry, masses of oxidized iron in matrix; common medium carbonate masses; strongly effervescent; 5 percent calcium carbonate equivalent; slightly alkaline (pH 7.6); clear wavy boundary.

Bkg2—30 to 42 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; 22 percent clay; weak medium subangular blocky structure; friable, hard, slightly sticky, slightly plastic; common very fine and fine roots throughout; common very fine dendritic tubular pores; 10 percent strong brown (7.5YR 5/6), dry, masses of oxidized iron in matrix; common medium carbonate masses; slightly effervescent; 10 percent calcium carbonate equivalent; slightly alkaline (pH 7.4); clear wavy boundary.

Cg1—42 to 59 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; 22 percent clay; massive; friable, hard, slightly sticky, slightly plastic; common very fine and fine roots; common very fine dendritic tubular pores; 22 percent distinct strong brown (7.5YR 5/6), dry, masses of oxidized iron in matrix; very slightly effervescent; slightly alkaline (pH 7.4); clear wavy boundary.

Cg2—59 to 80 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; 12 percent clay; massive; very friable, soft, nonsticky, nonplastic; common very fine and fine roots throughout; common very fine irregular pores; 10 percent medium strong brown (7.5YR 5/6), dry, masses of oxidized iron in matrix; noneffervescent; neutral (pH 6.8).

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* aquic

*Seasonal pattern:* The soil moisture control section is affected by peak precipitation in late summer and early fall. The soil is driest from November to March. The soil has the potential to be moist from April to October.

*Mean annual soil temperature:* 41 to 46 degrees F (5 to 7.8 degrees C)

*Mean summer soil temperature:* 63 to 66 degrees F (17.2 to 18.9 degrees C)

*Depth to diagnostic feature(s):* 24 to 60 inches (61 to 152 centimeters) to aquic conditions and 30 to 80 inches (76 to 203 centimeters) to endosaturation

*Thickness of diagnostic feature:* The mollic epipedon is 24 or more inches (61 or more centimeters)

*Linear extensibility:* weighted average RV is 3.7 percent

*Surface fragments:* 0 to 15 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

*Seasonal high water table:* from April through June

*Depth to top:* 12 to 36 inches (30 to 91 centimeters)

*Particle-size control section (weighted average):*
*Clay content:* 27 to 35 percent
*Sand content:* 15 to 35 percent
*Silt content:* 30 to 55 percent
*Rock fragment content:* 0 to 15 percent indurated gravel

A horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 3 to 5 dry; 2 or 3 moist
*Chroma:* 1 or 2
*Texture:* loam
*Clay content:* 18 to 26 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 25 to 52 percent
*Silt content:* 28 to 50 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Gypsum content:* 0 to 2 percent
*Electrical conductivity:* 1 to 4 mmhos/cm
*Sodium adsorption ratio:* 1 to 13
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 2.0 to 10.0 percent

By horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 3 to 5 dry; 2 or 3 moist
*Chroma:* 1 or 2
*Texture:* silty clay loam, clay loam
*Clay content:* 27 to 35 percent
*Carbonate clay content:* 2 to 7 percent
*Sand content:* 15 to 35 percent
*Silt content:* 33 to 55 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Gypsum content:* 2 to 5 percent
*Electrical conductivity:* 1 to 4 mmhos/cm
*Sodium adsorption ratio:* 1 to 13
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 1.0 to 4.0 percent

Bkg horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 3 to 5 dry; 2 or 3 moist
*Chroma:* 1 or 2
*Texture:* clay loam, loam, silty clay loam
*Clay content:* 15 to 35 percent
*Carbonate clay content:* 2 to 12 percent
*Sand content:* 15 to 45 percent
*Silt content:* 30 to 55 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 2 to 15 percent
*Gypsum content:* 0 to 2 percent
*Electrical conductivity:* 1 to 4 mmhos/cm

*Sodium adsorption ratio:* 1 to 13
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.2 to 1.5 percent

Cg horizon(s)
*Hue:* 7.5YR to 2.5Y
*Value:* 5 to 7 dry; 3 to 5 moist
*Chroma:* 1 or 2
*Texture:* sandy clay loam, sandy loam, loam
*Clay content:* 9 to 24 percent
*Carbonate clay content:* 0 to 4 percent
*Sand content:* 40 to 70 percent
*Silt content:* 20 to 38 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Gypsum content:* 0 to 2 percent
*Electrical conductivity:* 1 to 4 mmhos/cm
*Sodium adsorption ratio:* 1 to 13
*Reaction:* pH 6.6 to 8.4
*Organic matter content:* 0.2 to 0.8 percent

## Fallriver Series

*Map unit(s):* LeF
*Depth class:* very deep
*Drainage class:* somewhat excessively drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Landform:* mountain slopes
*Position on landform:* mountainflank, mountaintop
*Parent material:* colluvium derived from granite, gneiss, and mica schist
*Elevation:* 9,000 to 12,100 feet (2,743 to 3,688 meters)
*Slope:* 10 to 65 percent
*Climatic data:*
*Mean annual precipitation:* 25 to 35 inches (635 to 889 millimeters)
*Mean annual air temperature:* 30 to 38 degrees F. (-1.1 to 3.3 degrees C.)
*Frost-free period:* 35 to 50 days

*Taxonomic class:* Loamy-skeletal, isotic Typic Dystrocryepts

**Typical Pedon**

*Map unit in which located:* Fallriver-Rock outcrop complex, 10 to 65 percent slopes
*Location in survey area:* in forest land; 37 degrees 15 minutes 52.82 seconds north latitude and 105 degrees 15 minutes 40.33 seconds west longitude; USGS Ojito Peak topographic quadrangle, NAD83; UTM 476,840 meters E, 4,124,266 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 10 percent subrounded indurated gravel and 10 percent subrounded indurated cobbles derived from granite, gneiss, and mica schist

Oe—0 to 1 inch; moderately decomposed plant material; clear smooth boundary.
E—1 inch to 8 inches; brown (10YR 5/3), very gravelly sandy loam, brown (10YR 4/3), moist; weak fine subangular blocky structure; very friable, soft, nonsticky, nonplastic; many very fine roots throughout; 25 percent gravel and 12 percent cobbles; noneffervescent; moderately acid (pH 5.6); clear wavy boundary.

Bs1—8 to 18 inches; yellowish brown (10YR 5/6), very gravelly sandy loam, dark yellowish brown (10YR 4/6), moist; weak fine subangular blocky structure; very friable, soft, nonsticky, nonplastic; common very fine roots throughout; 25 percent gravel and 12 percent cobbles; noneffervescent; strongly acid (pH 5.4); gradual wavy boundary.

Bs2—18 to 37 inches; brown (10YR 5/3), very gravelly sandy loam, dark yellowish brown (10YR 4/4), moist; weak fine subangular blocky structure; very friable, slightly hard, nonsticky, nonplastic; common very fine roots throughout; 40 percent gravel and 12 percent cobbles; noneffervescent; moderately acid (pH 5.6); gradual wavy boundary.

Bs3—37 to 55 inches; pale brown (10YR 6/3), very gravelly sandy loam, brown (10YR 4/3), moist; weak fine subangular blocky structure; very friable, slightly hard, nonsticky, nonplastic; common very fine roots throughout; 40 percent gravel and 15 percent cobbles; noneffervescent; moderately acid (pH 5.6); gradual wavy boundary.

C—55 to 80 inches; pale brown (10YR 6/3), extremely gravelly loamy sand, brown (10YR 4/3), moist; single grain; very friable, slightly hard, nonsticky, nonplastic; common very fine roots throughout; 50 percent gravel and 15 percent cobbles; noneffervescent; moderately acid (pH 5.6).

**Range in Characteristics**

*Soil moisture regime subclass:* typic
*Soil moisture regime class:* udic
*Seasonal pattern:* moist continuously with peak periods April through August

*Mean annual soil temperature:* 35 to 38 degrees F.

*Mean summer soil temperature:* 38 to 42 degrees F.

*Depth to diagnostic feature(s):* albic materials: 0 to 2 inches (0 to 5 centimeters); cryoturbation: 0 to 1 inch (0 to 3 centimeters)

*Base saturation:* 20 to 50 percent in the upper 30 inches (76 centimeters)

*Surface fragments:* 5 to 40 percent subangular indurated gravel, 0 to 25 percent subangular indurated cobbles, and 0 to 5 percent subangular indurated stones derived from granite, gneiss, and mica schist

Particle-size control section (weighted average):
*Clay content:* 8 to 18 percent
*Sand content:* 55 to 75 percent
*Rock fragment content:* 40 to 60 percent

Oe horizon(s)
*Reaction:* pH 5.1 to 6.0
*Organic matter content:* 75.0 to 95.0 percent

E horizon(s)
*Hue:* 7.5 YR or 10YR
*Value:* 6 or 7 dry; 4 or 5 moist
*Chroma:* 2 or 3
*Texture:* very gravelly sandy loam
*Clay content:* 5 to 14 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 55 to 70 percent
*Silt content:* 15 to 35 percent
*Rock fragment content:* 35 to 60 percent total, consisting of 25 to 40 percent indurated gravel and 10 to 20 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 1 mmhos/cm

*Sodium adsorption ratio:* 0 to 1
*Reaction:* pH 5.1 to 6.0
*Base saturation:* Unspecified
*Organic matter content:* 0.0 to 1.0 percent

Bs1, Bs2, Bs3 horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 6 or 7 dry; 4 or 5 moist
*Chroma:* 3 to 6
*Texture:* very gravelly sandy loam, very cobbly sandy loam
*Clay content:* 8 to 18 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 55 to 75 percent
*Silt content:* 15 to 35 percent
*Rock fragment content:* 35 to 60 percent total, consisting of 25 to 40 percent indurated gravel and 10 to 20 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 1 mmhos/cm
*Sodium adsorption ratio:* 0 to 1
*Reaction:* pH 5.1 to 6.0
*Base saturation:* 20 50 percent
*Organic matter content:* 0.0 to 2.0 percent

C horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 6 or 7 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* extremely gravelly loamy sand, very gravelly loamy sand
*Clay content:* 2 to 12 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 75 to 85 percent
*Silt content:* 10 to 35 percent
*Rock fragment content:* 35 to 70 percent total, consisting of 25 to 50 percent indurated gravel and 10 to 20 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 1 mmhos/cm
*Sodium adsorption ratio:* 0 to 1
*Reaction:* pH 5.1 to 6.0
*Base saturation:* 20 to 50 percent
*Organic matter content:* 0.0 to 0.5 percent
*Note:* Some pedons have a few lamella of sandy clay loam.

## Fluvents

*Map unit(s):* FLB
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 6.0 to 20 in./hr. (rapid)
*Landform:* flood plains
*Position on landform:* talf
*Parent material:* alluvium derived from igneous and metamorphic rock
*Elevation:* 7,000 to 8,000 feet (2,134 to 2,438 meters)
*Slope:* 0 to 2 percent

*Climatic data:*
*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)
*Mean annual air temperature:* 48 to 50 degrees F. (8.9 to 10.0 degrees C.)
*Frost-free period:* 125 to 135 days

*Taxonomic class:* Fluvents

**Typical Pedon**

*Map unit in which located:* Fluvents, nearly level
*Location is in the Taos New Mexico Survey Area*
*Surface fragments:* none

A—0-6 inches; very gravelly sand, 0.5 percent clay; neutral (pH 7.0).
C—6-60 inches; stratified extremely gravelly coarse sand to gravelly sand, 0.5 percent clay; neutral (pH 7.0).

**Range in Characteristics**

*Soil moisture:*
*Soil moisture regime subclass:* Aridic
*Soil moisture regime class:* Ustic
*Mean annual soil temperature:* 50 to 52 degrees F.
*Depth to diagnostic feature(s):* 0 inches to the ochric epipedon
*Linear extensibility:* weighted average RV is 1.5 percent
*Seasonal high water table:* from January through December
*Depth to top:* 0 to 24 inches (0 to 61 centimeters)

*Particle-size control section (weighted average):*
*Clay content:* 0 to 1 percent
*Rock fragment content:* 15 to 85 percent

A horizon(s)
*Texture:* very gravelly sand
*Clay content:* 0 to 1 percent
*Rock fragment content:* 35 to 60 percent
*Electrical conductivity:* 0 to 4 mmhos/cm
*Reaction:* pH 6.6 to 7.3
*Organic matter content:* 0.0 to 0.1 percent

C horizon(s)
*Texture:* stratified extremely gravelly coarse sand to gravelly sand
*Clay content:* 0 to 1 percent
*Rock fragment content:* 15 to 90 percent
*Electrical conductivity:* 0 to 4 mmhos/cm
*Reaction:* pH 6.6 to 7.3
*Organic matter content:* 0.0 to 0.1 percent

## Fuertes Series

*Map unit(s):* FtA
*Depth class:* very deep
*Drainage class:* somewhat poorly drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* stream terrace
*Parent material:* fine-loamy alluvium derived from granite, gneiss, and mica schist
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Slope:* 0 to 2 percent

*Climatic data:*

*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Fine-loamy, mixed, superactive, frigid Oxyaquic Argiustolls

**Typical Pedon**

*Map unit in which located:* Fuertes sandy loam, 0 to 2 percent slopes
*Location in survey area:* Fuertes sandy loam; Sanchez Res SE USGS topographic quadrangle; Sanchez Res. SE , NAD83; 37 degrees 1 minutes 33.62 seconds north latitude and 105 degrees 25 minutes 32.18 seconds west longitude; UTM 462,144 meters E, 4,097,842 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 15 percent subrounded gravel derived from granite, gneiss, and mica schist

A—0 to 3 inches; dark grayish brown (10YR 4/2) sandy loam, very dark brown (10YR 2/2) moist; 10 percent clay; weak fine granular structure; very friable, soft, slightly sticky, slightly plastic; common very fine and medium roots throughout; common very fine irregular pores; common fine distinct mica flakes throughout; 10 percent gravel; noneffervescent; slightly alkaline (pH 7.6); clear smooth boundary.

Bt1—3 to 7 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; 19 percent clay; moderate fine subangular blocky structure, and moderate medium subangular blocky structure; friable, slightly hard, moderately sticky, moderately plastic; common very fine and medium roots throughout; common very fine dendritic tubular pores; common distinct clay films on all faces of peds; common fine distinct mica flakes throughout; 10 percent gravel; very slightly effervescent; slightly alkaline (pH 7.6); clear wavy boundary.

Btk—7 to 22 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; 19 percent clay; moderate medium subangular blocky structure, and moderate fine subangular blocky structure; friable, slightly hard, moderately sticky, moderately plastic; common very fine roots throughout; common very fine dendritic tubular pores; common faint clay films on all faces of peds; common fine distinct threadlike carbonate masses in cracks and common fine distinct carbonate masses around rock fragments; common fine distinct mica flakes throughout; 5 percent gravel; strongly effervescent; 6 percent calcium carbonate equivalent; moderately alkaline (pH 8.0); clear wavy boundary.

Bt2—22 to 40 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; 21 percent clay; moderate medium subangular blocky structure; friable, slightly hard, moderately sticky, moderately plastic; common very fine roots throughout; common very fine and fine dendritic tubular pores; common faint clay films on all faces of peds and on surfaces along pores; common fine distinct strong brown (7.5YR 5/6), moist, masses of oxidized iron throughout; common fine distinct mica flakes throughout; 5 percent gravel; noneffervescent; slightly alkaline (pH 7.4); gradual wavy boundary.

Bt3—40 to 54 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; 14 percent clay; moderate medium subangular blocky structure; very friable, soft, slightly sticky, slightly plastic; common very fine roots throughout; common very fine dendritic tubular pores; common faint clay films on all faces of peds and on surfaces along pores; many coarse distinct strong brown (7.5YR 5/6), moist, masses of oxidized iron throughout and associated clay depletions; common fine distinct mica flakes throughout; 10 percent gravel; noneffervescent; slightly alkaline (pH 7.4); gradual wavy boundary.

2C—54 to 80 inches; pale brown (10YR 6/3) very gravelly sand, brown (10YR 4/3) moist; 1 percent clay; single grain; loose, nonsticky, nonplastic; common very fine irregular pores; many coarse distinct strong brown (7.5YR 5/6), moist, masses of oxidized iron throughout; common fine distinct mica flakes throughout; 40 percent gravel and 10 percent cobbles; noneffervescent; slightly alkaline (pH 7.6).

**Range in Characteristics**

*Soil moisture:*
*Soil moisture regime subclass:* oxyaquic
*Soil moisture regime class:* ustic
*Seasonal pattern:* The soil moisture control section is affected by peak precipitation in late summer and early fall. The soil is driest from November to March. The soil has the potential to be moist from April to October.
*Mean annual soil temperature:* 41 to 46 degrees F (5 to 7.8 degrees C)
*Mean summer soil temperature:* 63 to 66 degrees F(17.2 to 18.9 degrees C)
*Depth to diagnostic features:* 2 to 6 inches (5 to 15 centimeters) to the argillic horizon; 5 to 12 inches (13 to 30 centimeters) to secondary carbonates; 40 to 60 inches (102 to 152 centimeters) to lithologic discontinuity; 40 to 60 inches (102 to 152 centimeters) to endosaturation; and 20 to 40 inches (51 to 102 centimeters) to redox concentrations
*Thickness of diagnostic feature:* The mollic epipedon is 7 to 25 inches (18 to 64 centimeters); the argillic horizon is 24 to 51 inches (61 to 130 centimeters)
*Linear extensibility:* weighted average RV is 2.7 percent
*Surface fragments:* 5 to 25 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Seasonal high water table:* from April through June
*Depth to top:* 18 to 42 inches (46 to 107 centimeters)

*Particle-size control section (weighted average):*
*Clay content:* 18 to 35 percent
*Sand content:* 26 to 50 percent
*Silt content:* 15 to 44 percent
*Rock fragment content:* 0 to 35 percent indurated gravel

A horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 4 or 5 dry; 2 or 3 moist
*Chroma:* 2 or 3
*Texture:* sandy loam
*Clay content:* 10 to 18 percent
*Sand content:* 26 to 60 percent
*Silt content:* 30 to 48 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Sodium adsorption ratio:* 0 to 2
*Reaction:* pH 7.4 to 7.8
*Organic matter content:* 1.5 to 6.0 percent

Bt horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 4 to 6 dry; 2 to 5 moist
*Chroma:* 2 or 3
*Texture:* loam, clay loam, gravelly clay loam
*Clay content:* 14 to 35 percent

*Sand content:* 26 to 50 percent
*Silt content:* 28 to 48 percent
*Rock fragment content:* 0 to 35 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Sodium adsorption ratio:* 0 to 2
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.0 to 1.5 percent

Btk horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 4 to 6 dry; 2 to 5 moist
*Chroma:* 2 or 3
*Texture:* loam, clay loam
*Clay content:* 18 to 35 percent
*Sand content:* 26 to 50 percent
*Silt content:* 28 to 48 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 1 to 15 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Sodium adsorption ratio:* 0 to 2
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.5 to 1.5 percent

2C horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 5 or 6 dry; 3 to 5 moist
*Chroma:* 3 or 4
*Texture:* very gravelly sand, very gravelly loamy sand
*Clay content:* 0 to 7 percent
*Sand content:* 80 to 100 percent
*Silt content:* 0 to 20 percent
*Rock fragment content:* 35 to 60 percent total, consisting of 35 to 45 percent indurated gravel and 0 to 15 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 2 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Sodium adsorption ratio:* 0 to 2
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 0.0 to 0.5 percent

## Gerrard Series

*Map unit(s):* VgA
*Depth class:* very deep
*Drainage class:* poorly drained
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)
*Landform:* flood plains
*Parent material:* fine loamy over sandy and gravelly alluvium derived from granite, gneiss, and mica schist
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Slope:* 0 to 1 percent

*Climatic data:*
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Typic Endoaquolls

**Typical Pedon**

*Map unit in which located:* Vastine-Gerrard complex, 0 to 1 percent slopes
*Location in survey area:* Gerrard sandy loam; Lasauses USGS topographic quadrangle, NAD83; 37 degrees 18 minutes 39.04 seconds north latitude and 105 degrees 44 minutes 8.49 seconds west longitude; UTM 434,808 meters E, 4,129,610 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* None

A—0 to 3 inches; dark grayish brown (10YR 4/2) sandy loam, very dark grayish brown (10YR 3/2) moist; 12 percent clay; weak fine granular structure; very friable, slightly hard, slightly sticky, slightly plastic; common very fine, fine and medium roots throughout; common very fine irregular pores; noneffervescent; slightly alkaline (pH 7.8); clear smooth boundary.
Ag—3 to 15 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; 30 percent clay; moderate medium subangular blocky structure; friable, hard, moderately sticky, moderately plastic; common very fine and fine roots throughout; common very fine dendritic tubular pores; 5 percent medium faint brown (7.5YR 5/4) dry, masses of oxidized iron throughout; common fine threadlike carbonate masses; slightly effervescent; slightly alkaline (pH 7.8); clear wavy boundary.
2Cg1—15 to 27 inches; grayish brown (10YR 5/2) loamy fine sand, dark grayish brown (10YR 4/2) moist; 5 percent clay; weak medium subangular blocky structure; very friable, soft, nonsticky, nonplastic; common very fine and fine roots throughout; common very fine irregular pores; 5 percent fine faint brown (7.5YR 5/4) dry, masses of oxidized iron throughout; common fine distinct mica flakes; noneffervescent; slightly alkaline (pH 7.4); clear wavy boundary.
2Cg2—27 to 48 inches; grayish brown (10YR 5/2) sand, brown (10YR 4/3) moist; single grain; loose, nonsticky, nonplastic; common very fine and fine roots throughout; common very fine irregular pores; 5 percent medium distinct brown (7.5YR 5/4) dry, masses of oxidized iron throughout; common fine distinct mica flakes; noneffervescent; slightly alkaline (pH 7.4); clear wavy boundary.
2Cg3—48 to 80 inches; dark grayish brown (10YR 4/2) extremely gravelly loamy sand, very dark grayish brown (10YR 3/2) moist; 5 percent clay; single grain; loose, nonsticky, nonplastic; common very fine roots throughout; common very fine irregular pores; 25 percent fine distinct brown (7.5YR 5/4) dry, masses of oxidized iron throughout; common fine distinct mica flakes; 60 percent gravel; noneffervescent; slightly alkaline (pH 7.4).

**Range in Characteristics**

*Soil moisture:*
*Soil moisture regime subclass:* typic
*Soil moisture regime class:* aquic
*Seasonal pattern:* The soil moisture control section is affected by peak precipitation in late summer and early fall. The soil is driest from November to March. The soil has the potential to be moist from April to October.
*Mean annual soil temperature:* 41 to 46 degrees F (5.0 to 7.8 degrees C)
*Mean summer soil temperature:* 59 to 63 degrees F (15.0 to 17.2 degrees C)

*Depth to restrictive feature:* 12 to 20 inches (30 to 51 centimeters) to strongly contrasting textural stratification
*Depth to diagnostic feature(s):* 12 to 80 inches (30 to 203 centimeters) to aquic conditions and endosaturation; 10 to 20 inches (25 to 51 centimeters) to lithologic discontinuity
*Thickness of diagnostic feature:* The mollic epipedon is 10 to 18 inches (25 to 46 centimeters)
*Linear extensibility:* weighted average RV is 1.3 percent
*Surface fragments:* 0 to 15 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Seasonal high water table:* from April through October
*Depth to top:* 10 to 20 inches (25 to 51 centimeters)

*Particle-size control section (weighted average):*
*Clay content:* 18 to 35 percent
*Sand content:* 10 to 35 percent
*Rock fragment content:* 0 to 15 percent indurated mixed gravel

A, Ag horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 2 or 3 moist
*Chroma:* 1 or 2
*Texture:* sandy loam, clay loam (A2)
*Clay content:* 12 to 40 percent
*Carbonate clay content:* 0 to 10 percent
*Sand content:* 35 to 70 percent
*Silt content:* 10 to 55 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 8.4
*Organic matter content:* 1.0 to 4.0 percent

2Cg1, 2Cg2 horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 to 6 dry; 3 or 4 moist
*Chroma:* 2 or 3
*Texture:* loamy fine sand, sand, loamy sand
*Clay content:* 0 to 15 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 70 to 100 percent
*Silt content:* 0 to 30 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 8.4
*Organic matter content:* 0.0 to 1.0 percent

3Cg horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 to 6 dry; 3 or 4 moist
*Chroma:* 2 or 3
*Texture:* extremely gravelly sand, extremely gravelly loamy sand
*Clay content:* 0 to 15 percent

*Carbonate clay content:* 0 to 1 percent
*Sand content:* 70 to 100 percent
*Silt content:* 0 to 30 percent
*Rock fragment content:* 60 to 85 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 8.4
*Organic matter content:* 0.0 to 1.0 percent

## Grayco Series

*Map unit(s):* GrA, GrC
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* outwash plain, outwash terrace
*Parent material:* outwash derived from granite, gneiss, and mica schist
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Slope:* 0 to 6 percent
*Climatic data:*
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (3.9 to 6.1 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Ustic Haplargids

**Typical Pedon**

*Map unit in which located:* Grayco sandy loam, 0 to 2 percent slopes
*Location in survey area:* Grayco sandy loam; Gracia USGS topographic quadrangle, NAD83; 37 degrees 0 minutes 3.17 seconds north latitude and 105 degrees 34 minutes 24.91 seconds west longitude; UTM 448,965 meters E, 4,095,124 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 25 percent gravel derived from granite, gneiss, and mica schist

A—0 to 4 inches; brown (7.5YR 4/3) sandy loam, dark brown (7.5YR 3/3) moist; 18 percent clay; weak fine granular structure; friable, soft, slightly sticky, slightly plastic; common very fine and fine roots throughout; common very fine irregular pores; 10 percent gravel; noneffervescent; neutral (pH 7.0); clear smooth boundary.
Bt—4 to 14 inches; brown (7.5YR 5/4) loam, brown (7.5YR 4/4) moist; 26 percent clay; moderate fine subangular blocky structure, and moderate medium subangular blocky structure; friable, hard, moderately sticky, moderately plastic; common very fine and fine roots throughout; common very fine dendritic tubular pores; common continuous faint clay films on faces of peds; 10 percent gravel; noneffervescent; slightly alkaline (pH 7.4); clear wavy boundary.
Bk—14 to 18 inches; brown (7.5YR 5/3) very gravelly sandy loam, brown (7.5YR 4/3) moist; 20 percent clay; weak medium subangular blocky structure, and weak fine subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; common very fine and fine roots throughout; common very fine dendritic tubular pores; common discontinuous faint clay films on faces of peds; common fine irregular carbonate masses around rock fragments; 35 percent gravel and

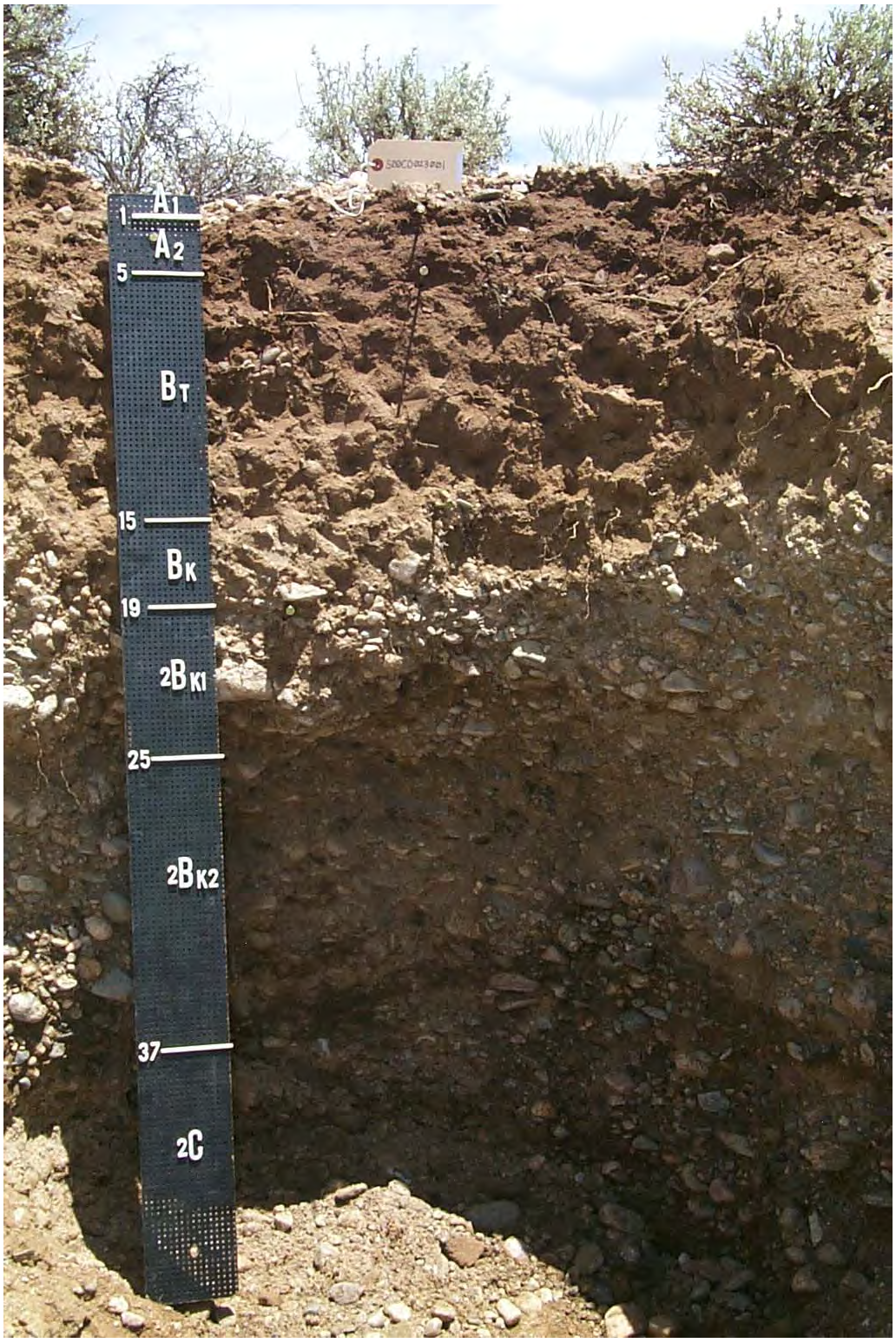



**Figure 9.—Typical profile of Grayco sandy loam, 0 to 2 percent slopes.**

5 percent cobbles; slightly effervescent; 1 percent calcium carbonate equivalent; slightly alkaline (pH 7.6); abrupt wavy boundary.

2Bk1—18 to 24 inches; brown (7.5YR 5/3) extremely gravelly loamy sand, brown (7.5YR 4/3) moist; 5 percent clay; massive; loose, nonsticky, nonplastic; common very fine roots throughout; common very fine irregular pores; many fine irregular carbonate masses around rock fragments; 60 percent gravel and 10 percent cobbles; strongly effervescent; 3 percent calcium carbonate equivalent; moderately alkaline (pH 8.0); gradual wavy boundary.

2Bk2—24 to 43 inches; brown (7.5YR 5/3) extremely gravelly sand, brown (7.5YR 4/3) moist; 2 percent clay; massive; loose, nonsticky, nonplastic; common very fine roots throughout; common very fine irregular pores; common fine irregular carbonate masses around rock fragments; 60 percent gravel and 5 percent cobbles; slightly effervescent; 1 percent calcium carbonate equivalent; slightly alkaline (pH 7.8); gradual wavy boundary.

2C—43 to 80 inches; brown (7.5YR 5/3) extremely gravelly sand, brown (7.5YR 4/3) moist; 2 percent clay; single grain; loose, nonsticky, nonplastic; common very fine roots throughout; common very fine irregular pores; 60 percent gravel and 5 percent cobbles; slightly effervescent; 1 percent calcium carbonate equivalent; slightly alkaline (pH 7.8).

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* The soil moisture control section is affected by peak precipitation in late summer and early fall. The soil is driest from November to March. The soil has the potential to be moist from April to October.

*Mean annual soil temperature:* 41 to 46 degrees F (5.0 to 7.8 degrees C)

*Mean summer soil temperature:* 63 to 66 degrees F (17.2 to 18.9 degrees C)

*Depth to restrictive feature:* 10 to 60 inches (25 to 152 centimeters) to strongly contrasting textural stratification

*Depth to diagnostic features:* 2 to 6 inches (5 to 15 centimeters) to the argillic horizon; 10 to 40 inches (25 to 102 centimeters) to lithologic discontinuity; 10 to 20 inches (25 to 51 centimeters) to secondary carbonates; 10 to 60 inches (25 to 152 centimeters) to strongly contrasting particle-size class

*Thickness of diagnostic feature:* The argillic horizon is 5 to 20 inches (13 centimeters to 51 centimeters)

*Linear extensibility:* weighted average RV is 1.2 percent

*Surface fragments:* 15 to 35 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

*Particle-size control section (weighted average):*

*Clay content:* 18 to 27 percent

*Sand content:* 35 to 60 percent

*Silt content:* 13 to 47 percent

*Rock fragment content:* 15 to 60 percent gravel and cobbles

A horizon(s)

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry; 3 or 4 moist

*Chroma:* 3 or 4

*Texture:* sandy loam

*Clay content:* 12 to 20 percent

*Carbonate clay content:* 0 to 2 percent

*Sand content:* 50 to 80 percent

*Silt content:* 10 to 40 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.1 to 7.3
*Organic matter content:* 1.0 to 2.0 percent

Bt horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 3 or 4
*Texture:* loam, gravelly sandy clay loam
*Clay content:* 12 to 27 percent
*Carbonate clay content:* 0 to 4 percent
*Sand content:* 35 to 65 percent
*Silt content:* 15 to 40 percent
*Rock fragment content:* 0 to 35 percent total, consisting of 0 to 30 percent indurated gravel and 0 to 5 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 7.3
*Organic matter content:* 0.5 to 1.0 percent

Bk horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 to 6 dry; 3 or 4 moist
*Chroma:* 3 or 4
*Texture:* very gravelly sandy loam, very gravelly sandy clay loam, gravelly loam
*Clay content:* 10 to 27 percent
*Carbonate clay content:* 2 to 6 percent
*Sand content:* 35 to 65 percent
*Silt content:* 15 to 40 percent
*Rock fragment content:* 15 to 60 percent total, consisting of 15 to 50 percent indurated gravel and 0 to 10 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 2 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.2 to 1.0 percent

2Bk horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 3 or 4
*Texture:* extremely gravelly sand, extremely gravelly loamy sand
*Clay content:* 0 to 8 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 60 to 100 percent
*Silt content:* 0 to 37 percent
*Rock fragment content:* 60 to 85 percent total, consisting of 55 to 70 percent indurated gravel and 5 to 15 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 1 to 10 percent
*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* pH 7.9 to 9.0
*Organic matter content:* 0.0 to 0.5 percent

2C horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 3 or 4
*Texture:* extremely gravelly loamy sand, extremely gravelly sand
*Clay content:* 0 to 5 percent
*Sand content:* 87 to 100 percent
*Silt content:* 0 to 13 percent
*Rock fragment content:* 60 to 85 percent total, consisting of 55 to 70 percent indurated gravel and 5 to 15 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 2 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.9 to 8.4
*Organic matter content:* 0.0 to 0.5 percent

## Graypoint Series

*Map unit(s):* GpA
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* alluvial flats
*Parent material:* alluvium derived from granite, gneiss, and mica schist
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Slope:* 0 to 2 percent
*Climatic data:*
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 7.8 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Typic Haplargids

**Typical Pedon**

*Map unit in which located:* Graypoint sandy loam, 0 to 2 percent slopes
*Location in survey area:* Graypoint sandy loam; San Acacio NW USGS topographic quadrangle, NAD83; 37 degrees 12 minutes 8.67 seconds north latitude and 105 degrees 35 minutes 40.60 seconds west longitude; UTM 447,234 meters E, 4,117,492 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 10 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

A—0 to 5 inches; brown (7.5YR 5/3) sandy loam, brown (7.5YR 4/3) moist; 18 percent clay; weak fine granular structure; friable, slightly hard, slightly sticky, slightly plastic; common very fine and fine roots throughout; common very fine irregular pores; 10 percent gravel; noneffervescent; neutral (pH 7.2); clear smooth boundary.
Bt—5 to 12 inches; brown (7.5YR 5/4) loam, brown (7.5YR 4/4) moist; 26 percent clay; moderate fine subangular blocky structure, and moderate medium subangular blocky structure; friable, hard, moderately sticky, moderately plastic; common very fine and fine roots throughout; common very fine dendritic tubular

pores; common continuous faint clay films on faces of peds; 10 percent gravel; noneffervescent; slightly alkaline (pH 7.4); clear wavy boundary.

2Btk—12 to 16 inches; brown (7.5YR 5/4) very gravelly loam, brown (7.5YR 4/4) moist; 26 percent clay; moderate fine subangular blocky structure; friable, hard, moderately sticky, moderately plastic; common very fine and fine roots throughout; common very fine dendritic tubular pores; common continuous faint clay films on faces of peds; common very fine irregular carbonate masses around rock fragments; 45 percent gravel; very slightly effervescent; 3 percent calcium carbonate equivalent; slightly alkaline (pH 7.4); clear wavy boundary.

2Bk1—16 to 21 inches; brown (7.5YR 5/3) extremely gravelly loamy sand, brown (7.5YR 4/3) moist; 5 percent clay; single grain; loose, nonsticky, nonplastic; common very fine roots throughout; common very fine irregular pores; common very fine irregular carbonate masses around rock fragments; 70 percent gravel; slightly effervescent; 2 percent calcium carbonate equivalent; slightly alkaline (pH 7.6); gradual wavy boundary.

2Bk2—21 to 36 inches; brown (7.5YR 5/3) extremely gravelly sand, brown (7.5YR 4/3) moist; 2 percent clay; single grain; loose, nonsticky, nonplastic; common very fine roots throughout; common very fine irregular pores; few very fine irregular carbonate masses around rock fragments; 75 percent gravel; slightly effervescent; 1 percent calcium carbonate equivalent; slightly alkaline (pH 7.8); gradual wavy boundary.

2C—36 to 72 inches; brown (7.5YR 5/3) extremely gravelly sand, brown (7.5YR 4/3), moist; 2 percent clay; single grain; loose, nonsticky, nonplastic; common very fine irregular pores; 75 percent gravel; noneffervescent; slightly alkaline (pH 7.6).

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* The soil moisture control section is affected by peak precipitation in late summer and fall. The soil is driest from November to March. The soil has the potential to be moist from April to October.

*Mean annual soil temperature:* 41 to 46 degrees F (5.0 to 7.8 degrees C)

*Mean summer soil temperature:* 59 to 63 degrees F (15.0 to 17.2 degrees C)

*Depth to restrictive feature:* 10 to 20 inches (25 to 51 centimeters) to strongly contrasting textural stratification

*Depth to diagnostic feature(s):* 3 to 16 inches (8 to 41 centimeters) to the argillic horizon; 8 to 20 inches (20 to 51 centimeters) to secondary carbonates; 10 to 20 inches (25 to 51 centimeters) to lithologic discontinuity; 10 to 20 inches (25 to 51 centimeters) to strongly contrasting particle-size class

*Thickness of diagnostic feature:* The argillic horizon is 6 to 12 inches (15 to 30 centimeters)

*Linear extensibility:* weighted average RV is 1.0 percent

*Surface fragments:* 0 to 35 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

*Particle-size control section (weighted average):*

*Clay content:* 18 to 30 percent

*Sand content:* 35 to 60 percent

*Silt content:* 15 to 40 percent

*Rock fragment content:* 30 to 75 percent

A horizon(s)

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry; 3 or 4 moist

*Chroma:* 2 or 3
*Texture:* sandy loam
*Clay content:* 14 to 20 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 55 to 80 percent
*Silt content:* 5 to 30 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 0.5 to 1.0 percent

Bt horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* loam, clay loam, sandy clay loam
*Clay content:* 22 to 32 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 35 to 60 percent
*Silt content:* 15 to 40 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 2 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 0.0 to 0.5 percent

2Btk horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* very gravelly loam, very gravelly sandy clay loam, very gravelly sandy loam
*Clay content:* 15 to 27 percent
*Carbonate clay content:* 2 to 6 percent
*Sand content:* 45 to 60 percent
*Silt content:* 12 to 40 percent
*Rock fragment content:* 35 to 60 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 1 to 10 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.4 to 8.4
*Base saturation:* Unspecified
*Organic matter content:* 0.0 to 0.5 percent

2Bk horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* extremely gravelly sand, extremely gravelly loamy sand
*Clay content:* 0 to 10 percent
*Carbonate clay content:* 0 to 3 percent
*Sand content:* 80 to 100 percent
*Silt content:* 0 to 15 percent

*Rock fragment content:* 60 to 90 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 1 to 10 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.0 to 0.5 percent

2C horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* extremely gravelly sand
*Clay content:* 0 to 6 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 90 to 100 percent
*Silt content:* 0 to 10 percent
*Rock fragment content:* 60 to 90 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 0.0 to 0.5 percent

## Hooper Series

*Map unit(s):* Hp, Ho
*Local phase(s):* loamy sand, clay loam
*Depth class:* very deep
*Drainage class:* moderately well drained
*Slowest permeability:* .06 to 0.2 in./hr. (slow)
*Landform:* flood plain, shrub-coppice dune
*Parent material:* eolian sands over alluvium derived from mixed sources and alluvium derived from mixed sources
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Slope:* 0 to 2 percent
*Climatic data:*
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Typic Natrargids

**Typical Pedon**

*Map unit in which located:* Hooper-Hooper, wind hummocky complex, 0 to 2 percent slopes
*Location in survey area:* Hooper clay loam; Blanca USGS topographic quadrangle; 37 degrees 26 minutes 26.25 seconds north latitude and 105 degrees 31 minutes 10.89 seconds west longitude; NAD83; UTM 454,028 meters E, 4,143,881 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* None

A—0 to 4 inches; brown (7.5YR 5/3) clay loam, brown (7.5YR 4/3) moist; 32 percent clay; strong medium platy structure; friable, very hard, moderately sticky, moderately plastic; common very fine and fine roots throughout; common very

fine vesicular pores; strongly effervescent; 3 percent calcium carbonate equivalent; 1 percent gypsum content; very strongly alkaline (pH 9.4); clear smooth boundary.

Btn—4 to 12 inches; brown (7.5YR 5/3) clay, brown (7.5YR 4/3) moist; 42 percent clay; strong coarse columnar structure, and strong coarse subangular blocky structure; firm, very hard, very sticky, very plastic; common very fine and fine roots throughout; common very fine dendritic tubular pores; common continuous distinct clay films on all faces of peds; strongly effervescent; 5 percent calcium carbonate equivalent; 1 percent gypsum content; very strongly alkaline (pH 9.4); clear wavy boundary.

Btkn1—12 to 26 inches; brown (7.5YR 5/3) clay loam, brown (7.5YR 4/3) moist; 36 percent clay; strong medium prismatic structure, and strong medium angular blocky structure; firm, very hard, very sticky, very plastic; common very fine roots throughout; common very fine dendritic tubular pores; common continuous distinct clay films on all faces of peds; common medium carbonate masses; strongly effervescent; 15 percent calcium carbonate equivalent; 1 percent gypsum content; very strongly alkaline (pH 9.4); clear wavy boundary.

Btkn2—26 to 33 inches; brown (7.5YR 5/3) clay loam, brown (7.5YR 4/3) moist; 32 percent clay; moderate medium subangular blocky structure; friable, very hard, moderately sticky, moderately plastic; common very fine roots throughout; common very fine dendritic tubular pores; few discontinuous faint clay films on all faces of peds; many medium carbonate masses; strongly effervescent; 20 percent calcium carbonate equivalent; 1 percent gypsum content; very strongly alkaline (pH 9.4); clear wavy boundary.

Bkn—33 to 37 inches; brown (10YR 5/3) sandy clay loam, brown (10YR 4/3) moist; 20 percent clay; moderate medium subangular blocky structure; very friable, soft, slightly sticky, nonplastic; common very fine roots throughout; common very fine irregular pores; few fine carbonate masses; strongly effervescent; 20 percent calcium carbonate equivalent; 1 percent gypsum content; very strongly alkaline (pH 9.2); abrupt wavy boundary.

2C1—37 to 50 inches; brown (10YR 5/3) sand, brown (10YR 4/3) moist; 2 percent clay; single grain; loose, nonsticky, nonplastic; common very fine roots throughout; common very fine irregular pores; noneffervescent; 3 percent calcium carbonate equivalent; 1 percent gypsum content; moderately alkaline (pH 8.0); gradual wavy boundary.

2C2—50 to 80 inches; brown (10YR 5/3) sand, dark brown (10YR 3/3) moist; 2 percent clay; single grain; loose, nonsticky, nonplastic; common very fine irregular pores; 8 percent medium distinct strong brown (7.5YR 5/6), dry, masses of oxidized iron in matrix; noneffervescent; 1 percent calcium carbonate equivalent; 1 percent gypsum content; slightly alkaline (pH 7.8).

## Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* The soil moisture control section is affected by peak precipitation in late summer and early fall. The soil is driest from November to March. The soil has the potential to be moist from April to October.

*Mean annual soil temperature:* 41 to 46 degrees F (5.0 to 7.8 degrees C)

*Mean summer soil temperature:* 59 to 63 degrees F (15.0 to 17.2 degrees C)

*Depth to restrictive feature:* 20 to 60 inches (51 to 152 centimeters) to strongly contrasting textural stratification

*Depth to diagnostic feature(s):* 3 to 7 inches (8 to 18 centimeters) to the natric and argillic horizons; 5 to 28 inches (13 to 71 centimeters) to the calcic horizon; 20 to 40 inches (51 to 102 centimeters) to lithologic discontinuity; and 20 to 60 inches (51 to 152 centimeters) to strongly contrasting particle-size class
*Thickness of diagnostic feature:* The natric and argillic horizons are 11 to 33 inches (28 to 84 centimeters)
*Linear extensibility:* weighted average RV is 2.5 percent
*Surface fragments:* 0 to 15 percent subrounded indurated gravel derived from mixed sources
*Seasonal high water table:* from June through September
*Depth to top:* 48 to 72 inches (122 to 183 centimeters)

*Particle-size control section (weighted average):*
*Clay content:* 25 to 35 percent
*Sand content:* 15 to 45 percent
*Rock fragment content:* 0 to 15 percent indurated gravel

A horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 3 to 5 moist
*Chroma:* 3 or 4
*Texture:* loamy sand, clay loam
*Clay content:* 2 to 40 percent
*Carbonate clay content:* 0 to 15 percent
*Sand content:* 27 to 89 percent
*Silt content:* 0 to 50 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from mixed sources
*Calcium carbonate equivalent:* 0 to 5 percent
*Gypsum content:* 0 to 5 percent
*Electrical conductivity:* 0 to 4 mmhos/cm
*Sodium adsorption ratio:* 2 to 15
*Reaction:* pH 7.4 to 9.6
*Organic matter content:* 0.0 to 1.0 percent

Btn horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 3 to 5 moist
*Chroma:* 3 or 4
*Texture:* clay loam, clay, sandy clay loam
*Clay content:* 20 to 50 percent
*Carbonate clay content:* 2 to 15 percent
*Sand content:* 15 to 75 percent
*Silt content:* 10 to 46 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from mixed sources
*Calcium carbonate equivalent:* 1 to 15 percent
*Gypsum content:* 0 to 5 percent
*Electrical conductivity:* 0 to 4 mmhos/cm
*Sodium adsorption ratio:* 13 to 25
*Reaction:* pH 8.5 to 9.6
*Organic matter content:* 0.0 to 1.0 percent

Bkn, Btkn horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 4 or 5 moist

*Chroma:* 3 or 4
*Texture:* sandy clay loam, sandy loam, clay, clay loam
*Clay content:* 10 to 50 percent
*Carbonate clay content:* 2 to 15 percent
*Sand content:* 20 to 75 percent
*Silt content:* 10 to 48 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from mixed sources
*Calcium carbonate equivalent:* 15 to 30 percent
*Gypsum content:* 0 to 5 percent
*Electrical conductivity:* 0 to 4 mmhos/cm
*Sodium adsorption ratio:* 13 to 25
*Reaction:* pH 8.5 to 9.6
*Organic matter content:* 0.0 to 1.0 percent

2C horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* sandy loam, loamy sand, sand
*Clay content:* 0 to 10 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 71 to 100 percent
*Silt content:* 0 to 25 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from mixed sources
*Calcium carbonate equivalent:* 0 to 5 percent
*Gypsum content:* 0 to 5 percent
*Electrical conductivity:* 0 to 4 mmhos/cm
*Sodium adsorption ratio:* 0 to 15
*Reaction:* pH 6.6 to 9.6
*Organic matter content:* 0.0 to 1.0 percent

## Howlett Series

*Map unit(s):* LH
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* mountain slopes
*Position on landform:* mountainflank
*Parent material:* slope alluvium and colluvium derived from sandstone
*Elevation:* 8,500 to 10,800 feet (2,591 to 3,292 meters)
*Slope:* 5 to 40 percent
*Climatic data:*
*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)
*Mean annual air temperature:* 37 to 42 degrees F. (3.0 to 5.5 degrees C.)
*Frost-free period:* 40 to 70 days

*Taxonomic class:* Fine-loamy, mixed, superactive Ustic Haplocryalfs

**Typical Pedon**

*Map unit in which located:* Leadville-Howlett complex, 5 to 40 percent slopes, stony
*Location in survey area:* Howlett cobbly sandy loam; in an area of Leadville-Howlett complex, 5 to 40 percent slopes, stony; in forest land; about 1.3 miles west of the

intersection of Wilkens and Hell Canyons in Hell Canyon, T. 33 S., R. 69 W.; USGS Stonewall topographic quadrangle; 37 degrees 10 minutes 23.00 seconds north latitude and 105 degrees 4 minutes 59.9 0 seconds west longitude; UTM 492,604 meters E, 4,114,073 meters N, zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 1 percent stones derived from sandstone

Oi—0 to 2 inches; slightly decomposed plant material; dominantly needles, twigs and moss.

E—2 to 14 inches; pinkish gray (5YR 6/2) cobbly sandy loam, reddish brown (5YR 4/3) moist; moderate fine granular structure; very friable, soft, nonsticky, nonplastic; 1 percent stones, 10 percent cobbles, and 10 percent gravel; noneffervescent; slightly acid (pH 6.4); clear smooth boundary.

Bt1—14 to 23 inches; reddish gray (5YR 5/2) gravelly sandy clay loam, dark reddish gray (5YR 4/2) moist; moderate medium subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; 10 percent distinct clay films on all faces of peds; 5 percent cobbles and 15 percent gravel; noneffervescent; moderately acid (pH 6.0); clear smooth boundary.

Bt2—23 to 47 inches; reddish brown (2.5YR 5/3) gravelly sandy clay loam, reddish brown (2.5YR 4/4) moist; moderate medium subangular blocky structure; firm, hard, slightly sticky, slightly plastic; 50 percent distinct clay films on all faces of peds; 5 percent cobbles and 20 percent gravel; noneffervescent; slightly acid (pH 6.4); clear wavy boundary.

BCt—47 to 62 inches; dark reddish brown (2.5YR 3/4) very cobbly sandy clay loam, dark reddish brown (2.5YR 3/4) moist; weak medium subangular blocky structure; friable, hard, slightly sticky, slightly plastic; 15 percent distinct clay films on vertical faces of peds; 15 percent gravel and 30 percent cobbles; noneffervescent; neutral (pH 6.6).

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* udic

*Seasonal pattern:* moist from March through September

*Mean annual soil temperature:* 38 to 43 degrees F.

*Mean summer soil temperature:* 44 to 48 degrees F.

*Depth to diagnostic feature(s):* 0 to 3 inches to the albic horizon; 9 to 23 inches to the argillic horizon

*Depth to the base of the argillic horizon:* 62 or more inches

*Thickness of the albic horizon:* 8 to 20 inches

*Particle-size control section (weighted average):*

*Clay content:* 18 to 35 percent

*Sand content:* 40 to 65 percent

*Rock fragment content:* 15 to 35 percent

E horizon(s):

*Hue:* 5YR or 7.5YR

*Value:* 6 or 7 dry, 4 or 5 moist

*Chroma:* 2 or 3

*Clay content:* 10 to 20 percent

*Rock fragment content:* 15 to 35 percent total, consisting of 1 to 5 percent fine gravel, 6 to 10 percent medium and coarse gravel, 8 to 15 percent cobbles, and 0 to 5 percent stones derived from sandstone

*Reaction:* moderately acid to neutral

*Organic matter content:* 0.0 to 1.0 percent
*Cation exchange capacity:* 7.6 to 16.6 meq/100 grams

Bt horizon(s):
*Hue:* 5YR or 2.5YR
*Value:* 5 or 6 dry, 4 or 5 moist
*Chroma:* 3 to 6
*Texture:* gravelly clay loam or gravelly sandy clay loam
*Clay content:* 20 to 35 percent
*Rock fragment content:* 15 to 35 percent total, consisting of 0 to 8 percent fine gravel, 9 to 17 percent medium and coarse gravel, 0 to 10 percent cobbles, and 0 to 4 percent stones derived from sandstone
*Reaction:* slightly acid or neutral
*Organic matter content:* 0.0 to 0.5 percent
*Base saturation:* 60 to 100 percent
*Cation exchange capacity:* 14.2 to 26.7 meq/100 grams

BCt horizon(s):
*Hue:* 5YR or 2.5YR
*Value:* 4 to 6 dry, 3 to 5 moist
*Chroma:* 3 to 6
*Clay content:* 20 to 35 percent
*Rock fragment content:* 35 to 60 percent total, consisting of 0 to 10 percent fine gravel, 1 to 15 percent medium and coarse gravel, 17 to 30 percent cobbles, and 0 to 5 percent stones derived from sandstone
*Reaction:* slightly acid or neutral
*Organic matter content:* 0.0 to 0.5 percent
*Base saturation:* 60 to 100 percent
*Cation exchange capacity:* 14.2 to 26.7 meq/100 grams

## Kibin Series

*Map unit(s):* KbA, KbC
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)
*Landform:* stream terrace
*Position on landform:* tread
*Parent material:* fine–loamy alluvium over outwash derived from granite, gneiss, and mica schist
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Slope:* 0 to 5 percent
*Climatic data:*
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Pachic Argiustolls

**Typical Pedon**

*Map unit in which located:* Kibin fine sandy loam, 0 to 3 percent slopes
*Location in survey area:* Kibin fine sandy loam; in an area of Kibin fine sandy loam, 0 to 3 percent slopes; in rangeland; Garcia USGS topographic quadrangle; 37 degrees 1 minutes 59.00 seconds north latitude and 105 degrees 35 minutes

59.00 seconds west longitude; UTM 446,642 meters E, 4,098,509 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 25 percent indurated gravel derived from granite, gneiss, and mica schist

Ap1—0 to 1 inch; brown (10YR 5/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; 18 percent clay; weak fine granular structure; friable, slightly hard, moderately sticky, moderately plastic; common very fine and fine roots throughout; common fine irregular and common fine dendritic tubular and common very fine irregular and common very fine dendritic tubular pores; 7 percent gravel; noneffervescent; slightly alkaline (pH 7.6); clear smooth boundary.

Ap2—1 inch to 3 inches; yellowish brown (10YR 5/4) sandy clay loam, very dark grayish brown (10YR 3/2) moist; 23 percent clay; moderate thin platy structure; friable, slightly hard, moderately sticky, moderately plastic; common very fine and fine roots throughout; common fine irregular and common fine dendritic tubular and common very fine irregular and common very fine dendritic tubular pores; 9 percent gravel; noneffervescent; neutral (pH 6.8); clear smooth boundary.

Ap3—3 to 9 inches; yellowish brown (10YR 5/4) sandy clay loam, dark brown (10YR 3/3) moist; 22 percent clay; moderate fine subangular blocky structure parting to moderate very fine subangular blocky structure; friable, slightly hard, moderately sticky, moderately plastic; common very fine and fine roots throughout; common fine irregular and common fine dendritic tubular and common very fine irregular and common very fine dendritic tubular pores; 11 percent gravel; noneffervescent; neutral (pH 6.8); clear smooth boundary.

Bt—9 to 14 inches; brown (10YR 5/3) sandy clay loam, very dark grayish brown (10YR 3/2) moist; 21 percent clay; moderate coarse prismatic structure parting to moderate medium prismatic structure parting to moderate medium subangular blocky structure parting to moderate fine subangular blocky structure; firm, moderately hard, moderately sticky, moderately plastic; common very fine and fine roots throughout; common fine irregular and common fine dendritic tubular pores; 25 percent continuous distinct clay films on all faces of peds; 1 percent gravel, 11 percent gravel noneffervescent; neutral (pH 7.2); clear wavy boundary.

Btb—14 to 19 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; 25 percent clay; moderate medium prismatic structure parting to moderate medium angular blocky structure parting to moderate fine angular blocky structure; firm, moderately hard, moderately sticky, moderately plastic; common very fine and fine roots throughout; common fine irregular and common fine dendritic tubular and common very fine irregular and common very fine dendritic tubular pores; 25 percent continuous distinct clay films on all faces of peds; 2 percent gravel; noneffervescent; slightly alkaline (pH 7.6); clear wavy boundary.

Btkb1—19 to 27 inches; light brownish gray (10YR 6/2) loam, brown (10YR 4/3) moist; 23 percent clay; moderate coarse prismatic structure parting to moderate medium prismatic structure parting to moderate coarse subangular blocky structure parting to moderate medium subangular blocky structure; firm, moderately hard, moderately sticky, moderately plastic; common very fine and fine roots throughout; common fine irregular and common fine dendritic tubular and common very fine irregular and common very fine dendritic tubular pores; discontinuous clay films on bottom surfaces of rock fragments and 25 percent continuous distinct clay films on all faces of peds; carbonate masses on bottom of rock fragments; 2 percent gravel; slightly effervescent; slightly alkaline (pH 7.6); clear wavy boundary.

Btkb2—27 to 37 inches; grayish brown (10YR 5/2) clay loam, very dark grayish brown (10YR 3/2) moist; 38 percent clay; strong coarse prismatic structure parting to strong medium prismatic structure parting to strong medium angular blocky

structure parting to strong fine angular blocky structure; very firm, hard, very sticky, very plastic; common very fine and fine roots throughout; common fine irregular and common fine dendritic tubular and common very fine irregular and common very fine dendritic tubular pores; discontinuous clay films on bottom surfaces of rock fragments and 25 percent continuous distinct clay films on all faces of peds; carbonate masses on bottom of rock fragments; 8 percent gravel; slightly effervescent; slightly alkaline (pH 7.6); clear wavy boundary.

2Btk—37 to 52 inches; brown (7.5YR 4/4) extremely gravelly loamy coarse sand, brown (7.5YR 4/3) moist; 11 percent clay; weak fine subangular blocky structure; very friable, soft, slightly sticky, slightly plastic; common very fine and fine roots throughout; common fine irregular and common fine dendritic tubular and common very fine irregular and common very fine dendritic tubular pores; prominent clay films on bottom surfaces of rock fragments; carbonate masses on bottom of rock fragments; 67 percent gravel; slightly effervescent; slightly alkaline (pH 7.4); gradual wavy boundary.

2Bk—52 to 80 inches; variegated colors, extremely gravelly coarse sand; 4 percent clay; single grain; loose, nonsticky, nonplastic; common very fine and fine roots throughout; common fine irregular and common very fine irregular pores; carbonate masses on bottom of rock fragments; 61 percent gravel; noneffervescent; slightly alkaline (pH 7.4).

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* The moisture control section is affected by peak precipitation in late summer and early fall. The soil is driest from November to March. The soil has the potential to be moist from April to October.

*Mean annual soil temperature:* 41 to 46 degrees F (5 to 7.8 degrees C)

*Mean summer soil temperature:* 63 to 66 degrees F (17.2 to 18.9 degrees C)

*Depth to restrictive feature:* 20 to 40 inches (50 to 102 centimeters) to strongly contrasting textural stratification

*Depth to diagnostic feature(s):* 5 to 15 inches (13 to 38 centimeters) to the argillic horizon; 10 to 40 inches (25 to 102 centimeters) to lithologic discontinuity; and 20 to 60 inches (51 to 152 centimeters) to strongly contrasting particle-size class

*Thickness of diagnostic feature:* The mollic epipedon is 16 to 40 inches (40 to 102 centimeters); the argillic horizon is 7 to 36 inches (18 to 91 centimeters)

*Linear extensibility:* weighted average RV is 3.3 percent

*Surface fragments:* 25 to 35 percent indurated gravel derived from granite, gneiss, and mica schist

*Particle-size control section (weighted average, upper part):*

*Clay content:* 20 to 35 percent

*Sand content:* 40 to 55 percent

*Rock fragment content:* 0 to 15 percent

Ap horizon(s)

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry; 2 or 3 moist

*Chroma:* 2 or 3

*Texture:* fine sandy loam, sandy clay loam

*Clay content:* 15 to 27 percent

*Carbonate clay content:* 0 to 1 percent

*Sand content:* 48 to 82 percent

*Silt content:* 0 to 31 percent

*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 4 mmhos/cm
*Sodium adsorption ratio:* 0 to 1
*Reaction:* pH 6.1 to 7.8
*Organic matter content:* 1.0 to 3.0 percent

Bt horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 2 or 3 moist
*Chroma:* 2 or 3
*Texture:* sandy clay loam
*Clay content:* 20 to 35 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 48 to 82 percent
*Silt content:* 0 to 31 percent
*Rock fragment content:* 5 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 4 mmhos/cm
*Reaction:* pH 6.6 to 7.3
*Organic matter content:* 1.0 to 3.0 percent

Btb horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 to 5 dry; 2 to 3 moist
*Chroma:* 2 or 3
*Texture:* loam
*Clay content:* 20 to 26 percent
*Carbonate clay content:* 0 to 3 percent
*Sand content:* 26 to 49 percent
*Silt content:* 29 to 49 percent
*Rock fragment content:* 0 to 5 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 3 percent
*Electrical conductivity:* 0 to 4 mmhos/cm
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 1.0 to 4.0 percent

Btkb horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 to 6 dry; 2 to 4 moist
*Chroma:* 2 or 3
*Texture:* loam, clay loam
*Clay content:* 15 to 40 percent
*Carbonate clay content:* 0 to 5 percent
*Sand content:* 21 to 50 percent
*Silt content:* 18 to 49 percent
*Rock fragment content:* 0 to 10 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 3 percent
*Electrical conductivity:* 0 to 4 mmhos/cm
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.0 to 4.0 percent

2Btk horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 3 to 5 dry; 3 to 5 moist
*Chroma:* 2 to 5
*Texture:* extremely gravelly loamy coarse sand
*Clay content:* 5 to 14 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 77 to 87 percent
*Silt content:* 0 to 16 percent
*Rock fragment content:* 35 to 90 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 3 percent
*Electrical conductivity:* 0 to 4 mmhos/cm
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.0 to 0.5 percent

2Bk horizon(s)
*Texture:* extremely gravelly coarse sand
*Clay content:* 0 to 9 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 86 to 100 percent
*Silt content:* 0 to 23 percent
*Rock fragment content:* 35 to 90 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 3 percent
*Electrical conductivity:* 0 to 4 mmhos/cm
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 0.0 to 0.5 percent

## Lambe Series

*Map unit(s):* LbF
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* mountain slope
*Position on landform:* mountainflank
*Parent material:* gravelly alluvium over colluvium derived from granite, gneiss, and mica schist
*Elevation:* 8,900 to 11,500 feet (2,713 to 3,505 meters)
*Slope:* 5 to 65 percent
*Climatic data:*
*Mean annual precipitation:* 16 to 25 inches (406 to 635 millimeters)
*Mean annual air temperature:* 33 to 41 degrees F. (0.6 to 5.0 degrees C.)
*Frost-free period:* 40 to 70 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive Ustic Argicryolls

**Typical Pedon**

*Map unit in which located:* Lambe-Woodhall complex, 5 to 65 percent slopes
*Location in survey area:* Lambe gravelly sandy loam; Taylor Ranch USGS topographic quadrangle, NAD83; 37 degrees 13 minutes 35.57 seconds north latitude and 105 degrees 20 minutes 4.32 seconds west longitude; UTM 470,323 meters E, 4,120,057 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 30 percent subrounded indurated gravel, 10 percent subrounded indurated cobbles, and 1 percent subrounded indurated stones derived from granite, gneiss, and mica schist

A—0 to 3 inches; brown (7.5YR 4/3) gravelly sandy loam, dark brown (7.5YR 3/2) moist; 18 percent clay; weak fine granular structure; friable, soft, slightly sticky, nonplastic; many very fine, fine and medium roots throughout; 20 percent gravel and 5 percent cobbles; noneffervescent; neutral (pH 7.0); clear wavy boundary.

Bt1—3 to 8 inches; brown (7.5YR 4/3) very gravelly sandy clay loam, dark brown (7.5YR 3/2) moist; 23 percent clay; weak fine subangular blocky structure; friable, slightly hard, moderately sticky, nonplastic; many very fine, fine and medium roots throughout; very few distinct clay films on faces of peds; 25 percent gravel and 10 percent cobbles; noneffervescent; neutral (pH 7.0); clear wavy boundary.

Bt2—8 to 12 inches; brown (7.5YR 5/3) very gravelly sandy clay loam, dark brown (7.5YR 3/3) moist; 26 percent clay; moderate fine subangular blocky structure; friable, moderately hard, moderately sticky, slightly plastic; common very fine, fine and medium roots throughout; few distinct clay films on faces of peds; 30 percent gravel and 15 percent cobbles; noneffervescent; neutral (pH 7.0); clear wavy boundary.

Bt3—12 to 22 inches; brown (7.5YR 5/3) very gravelly sandy clay loam, brown (7.5YR 4/3) moist; 25 percent clay; moderate fine subangular blocky structure; friable, moderately hard, moderately sticky, slightly plastic; very fine, common very fine, fine and medium roots throughout; few distinct clay films on faces of peds; 40 percent gravel and 15 percent cobbles; noneffervescent; neutral (pH 7.0); clear wavy boundary.

Bt4—22 to 38 inches; light brown (7.5YR 6/3) extremely gravelly sandy clay loam, brown (7.5YR 5/4) moist; 23 percent clay; weak fine subangular blocky structure; friable, moderately hard, moderately sticky, slightly plastic; few very fine, fine and medium roots throughout; very few distinct clay films on faces of peds; 50 percent gravel and 15 percent cobbles; noneffervescent; neutral (pH 7.0); gradual wavy boundary.

Bt5—38 to 65 inches; pale brown (10YR 6/3) extremely gravelly sandy clay loam, brown (10YR 5/3) moist; 21 percent clay; weak fine subangular blocky structure; friable, hard, slightly sticky, nonplastic; few very fine, fine and medium roots throughout; very few distinct clay films on faces of peds; 50 percent gravel and 15 percent cobbles; noneffervescent; slightly alkaline (pH 7.4); gradual wavy boundary.

Bk—65 to 80 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, yellowish brown (10YR 5/4) moist; 16 percent clay; weak fine subangular blocky structure; very friable, slightly hard, nonsticky, nonplastic; few very fine, fine and medium roots throughout; irregular carbonate masses around rock fragments; 50 percent gravel and 15 percent cobbles; strongly effervescent (5 percent calcium carbonate equivalent); slightly alkaline (pH 7.8).

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* udic

*Seasonal pattern:* The soil moisture control section is affected by snowmelt in early spring and peak precipitation occurring in the form of thunderstorms from June to September.

*Mean annual soil temperature:* 34 to 44 degrees F (1.1 to 6.7 degrees C)

*Mean summer soil temperature:* 42 to 48 degrees F (5.6 to 8.9 degrees C)

*Depth to diagnostic feature(s):* 2 to 8 inches (5 to 20 centimeters) to the argillic horizon; 60 to 80 inches (152 to 203 centimeters) to secondary carbonates

*Thickness of diagnostic feature:* The mollic epipedon is 10 to 16 inches (25 to 40 centimeters); the argillic horizon is 55 to 70 inches (140 to 178 centimeters); secondary carbonates are 10 to 20 inches (25 to 51 centimeters)
*Linear extensibility:* weighted average RV is 1.3 percent
*Surface fragments:* 10 to 50 percent subangular indurated gravel, 0 to 20 percent subangular indurated cobbles, and 0 to 5 percent subangular indurated stones derived from granite, gneiss, and mica schist

*Particle-size control section (weighted average):*
*Clay content:* 10 to 27 percent
*Sand content:* 38 to 70 percent
*Silt content:* 15 to 35 percent
*Rock fragment content:* 35 to 70 percent

A horizon(s)
*Hue:* 5YR or 7.5YR
*Value:* 3 or 4 dry; 2 or 3 moist
*Chroma:* 2 or 3
*Texture:* gravelly sandy loam
*Clay content:* 6 to 18 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 52 to 70 percent
*Silt content:* 15 to 35 percent
*Rock fragment content:* 15 to 35 percent total, consisting of 15 to 25 percent indurated gravel, 0 to 8 percent indurated cobbles, and 0 to 2 percent indurated stones derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Sodium adsorption ratio:* 0 to 1
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 1.5 to 3.0 percent

Bt1 and Bt2 horizon(s)
*Hue:* 5YR or 7.5YR
*Value:* 3 to 5 dry; 2 to 4 moist
*Chroma:* 2 or 3
*Texture:* very gravelly sandy clay loam, very gravelly sandy loam, gravelly loam
*Clay content:* 10 to 27 percent
*Carbonate clay content:* 0 to 3 percent
*Sand content:* 38 to 60 percent
*Silt content:* 15 to 35 percent
*Rock fragment content:* 15 to 60 percent total, consisting of 15 to 40 percent indurated gravel, 0 to 15 percent indurated cobbles, and 0 to 5 percent indurated stones derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Sodium adsorption ratio:* 0 to 1
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 0.2 to 2.0 percent

Bt3, Bt4 and Bt5 horizon(s)
*Hue:* 5YR or 7.5YR
*Value:* 4 to 6 dry; 3 to 5 moist
*Chroma:* 3 or 4

*Texture:* very gravelly sandy clay loam, very gravelly sandy loam, gravelly loam, very gravelly loam, extremely gravelly sandy loam, extremely gravelly coarse sandy loam, extremely gravelly sandy clay loam
*Clay content:* 10 to 27 percent
*Carbonate clay content:* 0 to 3 percent
*Sand content:* 38 to 70 percent
*Silt content:* 15 to 35 percent
*Rock fragment content:* 35 to 85 percent total, consisting of 30 to 60 percent indurated gravel, 5 to 20 percent indurated cobbles, and 0 to 5 percent indurated stones derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 3 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Sodium adsorption ratio:* 0 to 1
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 0.2 to 1.0 percent

Bk horizon(s)
*Hue:* 5YR or 7.5YR
*Value:* 4 to 6 dry; 3 to 5 moist
*Chroma:* 3 or 4
*Texture:* extremely gravelly sandy loam, extremely gravelly coarse sandy loam, extremely gravelly loamy coarse sand
*Clay content:* 5 to 18 percent
*Carbonate clay content:* 2 to 6 percent
*Sand content:* 52 to 75 percent
*Silt content:* 15 to 35 percent
*Rock fragment content:* 60 to 85 percent total, consisting of 50 to 60 percent indurated gravel, 10 to 20 percent indurated cobbles, and 0 to 5 percent indurated stones derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 2 to 10 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Sodium adsorption ratio:* 0 to 1
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.2 to 0.8 percent

## Laveta Series

*Map unit(s):* TlF, TlD
*Depth class:* moderately deep
*Drainage class:* well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Landform:* mountain slopes
*Position on landform:* mountain flank
*Parent material:* sandy slope alluvium over residuum weathered from sandstone
*Elevation:* 8,800 to 12,000 feet (2,682 to 3,658 meters)
*Slope:* 3 to 65 percent
*Climatic data:*
*Mean annual precipitation:* 16 to 25 inches (406 to 635 millimeters)
*Mean annual air temperature:* 33 to 41 degrees F. (0.6 to 5.0 degrees C.)
*Frost-free period:* 40 to 70 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive Ustic Haplocryalfs

### Typical Pedon

*Map unit in which located:* Tolvar-Laveta-Rock outcrop complex, 9 to 65 percent slopes

*Location in survey area:* Laveta gravelly fine sandy loam; McCarty Park USGS topographic quadrangle, NAD 83; 37 degrees 28 minutes 6.28 seconds north latitude and 105 degrees 12 minutes 9.83 seconds west longitude; NAD83; UTM 482,073 meters E, 4,146,856 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 20 percent subangular indurated gravel and 10 percent subangular indurated cobbles derived from sandstone

Oi—0 to 1 inch; slightly decomposed plant material; strongly acid (pH 5.2); clear wavy boundary.

E—1 inch to 9 inches; pale brown (10YR 6/3) gravelly fine sandy loam, brown (10YR 4/3) moist; 8 percent clay; weak medium subangular blocky structure; very friable, soft, nonsticky, nonplastic; common very fine and medium roots throughout; common very fine tubular pores and common medium tubular pores; 20 percent gravel, 5 percent cobbles; noneffervescent; slightly acid (pH 6.4); clear smooth boundary.

Bt—9 to 17 inches; brown (7.5YR 5/3) very gravelly fine sandy loam, brown (7.5YR 4/3) moist; 12 percent clay; weak medium subangular blocky structure; friable, slightly hard, nonsticky, nonplastic; common very fine and medium roots throughout; common very fine tubular pores; few distinct clay bridges between sand grains; 30 percent gravel, 5 percent cobbles; noneffervescent; slightly acid (pH 6.4); gradual smooth boundary.

C—17 to 26 inches; brown (7.5YR 5/3) extremely gravelly fine sandy loam, brown (7.5YR 4/3) moist; 7 percent clay; weak fine subangular blocky structure; friable, slightly hard, nonsticky, nonplastic; common very fine and medium roots throughout; common very fine tubular pores; 50 percent gravel, 20 percent cobbles; noneffervescent; slightly acid (pH 6.4); abrupt wavy boundary.

R—26 inches; sandstone bedrock.

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* udic

*Seasonal pattern:* The soil moisture control section is affected by snowmelt in early spring and peak precipitation occurring from thunderstorms from June to September.

*Mean annual soil temperature:* 34 to 44 degrees F (1.0 to 6.7 degrees C)

*Mean summer soil temperature:* 42 to 48 degrees F ( 5.6 to 8.9 degrees C)

*Depth to restrictive feature:* 20 to 40 inches (51 to 102 centimeters) to lithic bedrock

*Depth to diagnostic feature(s):* The argillic horizon is at 5 to 15 inches (13 to 38 centimeters)

*Thickness of diagnostic feature:* The argillic horizon is 8 to 10 inches (20 to 25 centimeters)

*Linear extensibility:* weighted average RV is 0.3 percent

*Surface fragments:* 5 to 35 percent subangular indurated gravel and 0 to 20 percent subangular indurated cobbles derived from sandstone

*Particle-size control section (weighted average):*

*Clay content:* 10 to 18 percent

*Sand content:* 35 to 60 percent

*Rock fragment content:* 35 to 60 percent

Oi horizon(s)
- *Texture:* slightly decomposed plant material
- *Reaction:* pH 5.1 to 6.0
- *Organic matter content:* 75.0 to 95.0 percent

E horizon(s)
- *Hue:* 7.5YR or 10YR
- *Value:* 5 or 6 dry; 4 or 5 moist
- *Chroma:* 2 or 3
- *Texture:* gravelly fine sandy loam
- *Clay content:* 3 to 12 percent
- *Carbonate clay content:* 0 to 1 percent
- *Sand content:* 35 to 60 percent
- *Silt content:* 25 to 60 percent
- *Rock fragment content:* 15 to 35 percent total, consisting of 15 to 25 percent indurated sandstone gravel and 0 to 10 percent indurated sandstone cobbles
- *Calcium carbonate equivalent:* 0 to 1 percent
- *Electrical conductivity:* 0 to 1 mmhos/cm
- *Reaction:* pH 6.1 to 7.3

Bt horizon(s)
- *Hue:* 7.5YR or 10YR
- *Value:* 4 or 5 dry; 3 or 4 moist
- *Chroma:* 3 or 4
- *Texture:* very gravelly fine sandy loam, very gravelly loam
- *Clay content:* 10 to 18 percent
- *Carbonate clay content:* 0 to 1 percent
- *Sand content:* 35 to 60 percent
- *Silt content:* 25 to 60 percent
- *Rock fragment content:* 15 to 60 percent total, consisting of 15 to 40 percent indurated sandstone gravel and 0 to 20 percent indurated sandstone cobbles
- *Calcium carbonate equivalent:* 0 to 1 percent
- *Electrical conductivity:* 0 to 1 mmhos/cm
- *Reaction:* pH 6.1 to 7.3
- *Organic matter content:* 0.2 to 1.0 percent

C horizon(s)
- *Hue:* 7.5YR or 10YR
- *Value:* 5 or 6 dry; 4 or 5 moist
- *Chroma:* 3 or 4
- *Texture:* extremely gravelly fine sandy loam
- *Clay content:* 3 to 12 percent
- *Carbonate clay content:* 0 to 1 percent
- *Sand content:* 35 to 60 percent
- *Silt content:* 25 to 60 percent
- *Rock fragment content:* 60 to 75 percent total, consisting of 45 to 50 percent indurated sandstone gravel and 15 to 25 percent indurated sandstone cobbles
- *Calcium carbonate equivalent:* 0 to 1 percent
- *Electrical conductivity:* 0 to 1 mmhos/cm
- *Reaction:* pH 6.1 to 7.3
- *Organic matter content:* 0.0 to 0.5 percent

R horizon; sandstone bedrock.

## Leadville Series

*Map unit(s):* SL, LH
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* mountain slopes
*Position on landform:* mountainflank
*Parent material:* colluvium derived from sandstone
*Elevation:* 8,000 to 10,800 feet (2,438 to 3,292 meters)
*Slope:* 15 to 65 percent
*Climatic data:*
*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)
*Mean annual air temperature:* 37 to 42 degrees F. (3.0 to 5.5 degrees C.)
*Frost-free period:* 40 to 70 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive Ustic Glossocryalfs

**Typical Pedon**

*Map unit in which located:* Leadville-Howlett complex, 5 to 40 percent slopes, stony
*Location in survey area:* Leadville cobbly sandy loam; in an area of Leadville-Howlett complex, 5 to 40 percent slopes, stony; in forest land; an unsectionalized area about 1 mile from the intersection of Wilkens and Hell Canyon in Hell Canyon, T. 33 S., R. 69 W.; USGS Stonewall topographic quadrangle; 37 degrees 10 minutes 28.00 seconds north latitude and 105 degrees 4 minutes 28.40 seconds west longitude; UTM 493,381 meters E, 4,114,222 meters N, zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 2 percent stones derived from sandstone

Oi—0 to 2 inches; slightly decomposed plant material; mainly needles, twigs and moss.
E—2 to 16 inches; light reddish brown (5YR 6/3) cobbly sandy loam, reddish brown (5YR 4/3) moist; moderate fine and medium granular structure; very friable, soft, nonsticky, nonplastic; many very fine and fine roots and common coarse roots; 5 percent stones and 10 percent cobbles and 15 percent gravel; noneffervescent; neutral (pH 6.6); clear smooth boundary.
B/E—16 to 22 inches; 60 percent light reddish brown (2.5YR 6/3) and 40 percent reddish brown (2.5YR 4/4) very cobbly sandy loam, red (2.5YR 4/6) moist; moderate fine subangular blocky structure; friable, slightly hard, nonsticky, nonplastic; many very fine and fine roots and many medium and coarse roots; 10 percent distinct clay films on all faces of peds; 2 percent stones and 15 percent gravel and 20 percent cobbles; noneffervescent; slightly acid (pH 6.2); clear smooth boundary.
Bt—22 to 48 inches; reddish brown (2.5YR 5/4) very cobbly sandy clay loam, red (2.5YR 4/6) moist; strong medium subangular blocky structure; very firm, very hard, moderately sticky, moderately plastic; many very fine and fine roots and common coarse roots; 55 percent distinct clay films on all faces of peds 15 percent gravel and 40 percent cobbles; noneffervescent; slightly acid (pH 6.2); gradual wavy boundary.
BCt—48 to 65 inches; red (2.5YR 4/6) very cobbly sandy clay loam, dark red (2.5YR 3/6) moist; moderate medium subangular blocky structure; firm, hard, moderately sticky, moderately plastic; common very fine and fine roots and common coarse roots; 20 percent distinct clay films on all faces of peds; 2 percent stones and 15 percent gravel and 30 percent cobbles; noneffervescent; neutral (pH 6.8).

**Range in Characteristics**

*Soil moisture:*
*Soil moisture regime subclass:* ustic
*Soil moisture regime class:* udic
*Seasonal pattern:* moist continuously with peak periods April through August
*Mean annual soil temperature:* 38 to 42 degrees F.
*Mean summer soil temperature:* 51 to 56 degrees F.
*Depth to diagnostic feature(s):* 2 to 4 inches to the albic horizon; 14 to 23 inches to the glossic horizon; 20 to 24 inches to the argillic horizon
*Thickness of the glossic horizon:* 4 to 12 inches

*Particle-size control section (weighted average):*
*Clay content:* 20 to 30 percent
*Sand content:* 40 to 65 percent
*Rock fragment content:* 35 to 60 percent, dominantly cobbles

E horizon(s):
*Hue:* 5YR or 7.5YR
*Value:* 5 to 7 dry, 4 to 6 moist
*Chroma:* 2 or 3
*Clay content:* 10 to 20 percent
*Rock fragment content:* 4 to 5 percent fine gravel, 5 to 12 percent medium and coarse gravel, 5 to 12 percent cobbles, and 1 to 6 percent stones derived from sandstone
*Reaction:* slightly acid or neutral
*Organic matter content:* 0.0 to 1.0 percent
*Cation exchange capacity:* 7.6 to 16.6 meq/100 grams

B/E horizon(s):
*Hue:* 5YR or 7.5YR
*Value:* 5 or 6 dry, 4 or 5 moist (B)
*Value:* 5 to 7 dry, 4 to 6 moist (E)
*Chroma:* 3 to 6 (B)
*Chroma:* 2 or 3 (E)
*Texture:* very cobbly sandy loam
*Clay content:* 10 to 20 percent
*Rock fragment content:* 5 to 10 percent fine gravel, 15 to 25 percent medium and coarse gravel, 15 to 20 percent cobbles, and 0 to 5 percent stones derived from sandstone
*Reaction:* medium acid to neutral
*Organic matter content:* 0.0 to 0.5 percent
*Cation exchange capacity:* 7.6 to 16.2 meq/100 grams

Bt horizon(s):
*Hue:* 10R to 5YR
*Value:* 5 or 6 dry, 4 or 5 moist
*Chroma:* 3 to 6
*Texture:* very cobbly clay loam, very cobbly sandy clay loam
*Clay content:* 20 to 35 percent
*Rock fragment content:* 2 to 5 percent fine gravel, 8 to 10 percent medium and coarse gravel, 25 to 40 percent cobbles, and 0 to 5 percent stones derived from sandstone
*Reaction:* medium acid to neutral
*Base saturation:* 60 to 100 percent
*Organic matter content:* 0.0 to 0.5 percent
*Cation exchange capacity:* 14.2 to 26.7 meq/100 grams

BCt horizon(s):
*Hue:* 10R to 5YR
*Value:* 4 to 6 dry, 3 to 5 moist
*Chroma:* 3 to 6
*Clay content:* 20 to 30 percent
*Rock fragment content:* 2 to 5 percent fine gravel, 6 to 15 percent medium and coarse gravel, 25 to 35 percent cobbles, and 1 to 5 percent stones derived from sandstone
*Reaction:* slightly acid or neutral
*Base saturation:* 60 to 100 percent
*Cation exchange capacity:* 14.2 to 23.3 meq/100 grams

## McGinty Series

*Map unit(s):* McA, McB, McC
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Landform:* alluvial flats, alluvial fans
*Position on landform:* backslopes, footslopes
*Parent material:* alluvium derived from granite, gneiss, and mica schist
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Slope:* 0 to 9 percent
*Climatic data:*
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Coarse-loamy, mixed, superactive, frigid Typic Haplocalcids

**Typical Pedon**

*Map unit in which located:* McGinty fine sandy loam, 0 to 1 percent slopes
*Location in survey area:* McGinty fine sandy loam; San Acacio USGS topographic quadrangle, NAD83; 37 degrees 7 minutes 33.42 seconds north latitude and 105 degrees 35 minutes 39.87 seconds west longitude; UTM 447,199 meters E, 4,109,010 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 20 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

A—0 to 4 inches; pale brown (10YR 6/3) fine sandy loam, dark yellowish brown (10YR 4/4) moist; 15 percent clay; weak fine granular structure; friable, slightly hard, slightly sticky, slightly plastic; common very fine and medium roots throughout; common very fine irregular pores; 10 percent gravel; slightly effervescent (2 percent calcium carbonate equivalent); slightly alkaline (pH 7.8); clear wavy boundary.
Bw—4 to 14 inches; pale brown (10YR 6/3) sandy loam, yellowish brown (10YR 5/4) moist; 15 percent clay; weak medium subangular blocky structure; friable, hard, slightly sticky, slightly plastic; common very fine and medium roots throughout; common very fine dendritic tubular pores; 10 percent gravel; slightly effervescent (3 percent calcium carbonate equivalent); moderately alkaline (pH 7.9); gradual wavy boundary.
Bk1—14 to 33 inches; pink (7.5YR 7/3) sandy loam, light brown (7.5YR 6/3) moist; 14 percent clay; weak medium subangular blocky structure, and weak coarse subangular blocky structure; friable, hard, slightly sticky, slightly plastic; common




**Figure 10.—Typical profile of McGinty fine sandy loam, 0 to 1 percent slopes.**

irregular carbonate masses around rock fragments; 5 percent gravel; violently effervescent (33 percent calcium carbonate equivalent); moderately alkaline (pH 7.9); diffuse broken boundary.

Bk2—33 to 71 inches; light brown (7.5YR 6/4) sandy loam, brown (7.5YR 5/4) moist; 16 percent clay; weak medium subangular blocky structure, and weak coarse subangular blocky structure; friable, hard, slightly sticky, slightly plastic; common very fine and coarse roots in cracks; common very fine dendritic tubular pores; fine irregular carbonate masses around rock fragments; 5 percent gravel; strongly effervescent (13 percent calcium carbonate equivalent); moderately alkaline (pH 7.9); diffuse irregular boundary.

Bk3—71 to 80 inches; light brown (7.5YR 6/4) sandy loam, brown (7.5YR 5/4) moist; 17 percent clay; massive; friable, slightly hard, slightly sticky, slightly plastic; common very fine and medium roots between peds; common very fine dendritic tubular pores; fine irregular carbonate masses around rock fragments; 10 percent gravel; strongly effervescent (12 percent calcium carbonate equivalent); moderately alkaline (pH 7.9).

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* The soil moisture control section is affected by peak precipitation in late summer and early fall. The soil is driest from November to March. The soil has the potential to be moist from April to October.

*Mean annual soil temperature:* 41 to 46 degrees F (5 to 7.8 degrees C)

*Mean summer soil temperature:* 59 to 63 degrees F (15 to 17.2 degrees C)

*Depth to diagnostic feature(s):* 12 to 21 inches (30 to 53 centimeters) to the calcic horizon

*Thickness of diagnostic feature:* The cambic horizon is 5 to 25 inches (13 to 64 centimeters); the calcic horizon is 10 to 58 inches (25 to 147 centimeters)

*Linear extensibility:* weighted average RV is 0.7 percent

*Surface fragments:* 0 to 35 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

*Particle-size control section (weighted average):*

*Clay content:* 12 to 18 percent

*Sand content:* 50 to 70 percent

*Silt content:* 12 to 38 percent

*Rock fragment content:* 0 to 15 percent

A horizon(s)

*Hue:* 7.5YR to 10YR

*Value:* 5 or 6 dry; 3 or 4 moist

*Chroma:* 3 or 4

*Texture:* fine sandy loam

*Clay content:* 5 to 18 percent

*Carbonate clay content:* 1 to 4 percent

*Sand content:* 55 to 80 percent

*Silt content:* 5 to 30 percent

*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist

*Calcium carbonate equivalent:* 1 to 5 percent

*Electrical conductivity:* 1 to 1 mmhos/cm

*Sodium adsorption ratio:* 0 to 1

very fine and fine roots throughout; common very fine dendritic tubular pores
*Reaction:* pH 6.6 to 8.4
*Organic matter content:* 0.5 to 1.0 percent

Bw horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 5 or 6 dry; 3 or 4 moist
*Chroma:* 3 or 4
*Texture:* sandy loam, loam
*Clay content:* 12 to 18 percent
*Carbonate clay content:* 1 to 6 percent
*Sand content:* 45 to 80 percent
*Silt content:* 5 to 35 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 1 to 5 percent
*Electrical conductivity:* 0 to 1 mmhos/cm
*Sodium adsorption ratio:* 0 to 1
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.2 to 1.0 percent

Bk horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 5 to 7 dry; 4 to 6 moist
*Chroma:* 3 or 4
*Texture:* sandy loam, loam
*Clay content:* 12 to 18 percent
*Carbonate clay content:* 3 to 12 percent
*Sand content:* 45 to 75 percent
*Silt content:* 5 to 30 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 10 to 35 percent
*Electrical conductivity:* 0 to 1 mmhos/cm
*Sodium adsorption ratio:* 0 to 1
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.0 to 0.5 percent

## Mesita Series

*Map unit(s):* MtA
*Depth class:* very deep
*Drainage class:* moderately well drained
*Slowest permeability:* .001 to .06 in./hr. (very slow)
*Landform:* flood plains
*Parent material:* clayey lacustrine deposits
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Slope:* 0 to 1 percent
*Climatic data:*
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Fine, smectitic, frigid Leptic Torrertic Natrustolls

**Typical Pedon**

*Map unit in which located:* Mesita silty clay loam, 0 to 1 percent slopes
*Location in survey area:* Mesita silty clay loam; Lasauses NW USGS topographic quadrangle, NAD83; 37 degrees 20 minutes 16.63 seconds north latitude and 105 degrees 41 minutes 13.14 seconds west longitude; UTM 439,146 meters E, 4,132,585 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* None

A—0 to 3 inches; grayish brown (10YR 5/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; 32 percent clay; moderate medium platy structure; friable, very hard, moderately sticky, moderately plastic; common very fine, fine and medium roots throughout; common very fine vesicular pores; irregular salt masses at top of horizon; slightly effervescent (2 percent calcium carbonate equivalent); 1 percent gypsum content; very strongly alkaline (pH 9.2); clear smooth boundary.
Btnz1—3 to 10 inches; dark grayish brown (10YR 4/2) silty clay, very dark brown (10YR 2/2) moist; 42 percent clay; moderate coarse prismatic structure, and strong medium granular structure; firm, very hard, very sticky, very plastic; common very fine, fine and medium roots throughout; common very fine irregular pores; few distinct clay films throughout; salt masses throughout; slightly effervescent (2 percent calcium carbonate equivalent); 1 percent gypsum content; very strongly alkaline (pH 9.4); clear wavy boundary.
Btnz2—10 to 21 inches; grayish brown (10YR 5/2) clay, very dark grayish brown (10YR 3/2) moist; 45 percent clay; strong medium prismatic structure, and strong fine angular blocky structure; firm, extremely hard, very sticky, very plastic; common very fine, fine and medium roots throughout; common very fine irregular pores; few distinct clay films throughout; salt masses throughout; slightly effervescent (2 percent calcium carbonate equivalent); 2 percent gypsum content; very strongly alkaline (pH 9.4); clear wavy boundary.
Btknyz—21 to 38 inches; grayish brown (10YR 5/2) clay, very dark grayish brown (10YR 3/2) moist; 40 percent clay; strong medium angular blocky structure; firm, extremely hard, very sticky, very plastic; common very fine, fine and medium roots throughout; common very fine irregular pores; few distinct clay films throughout; salt masses throughout and many medium gypsum masses infused into matrix adjacent to pores; strongly effervescent (10 percent calcium carbonate equivalent); 4 percent gypsum content; very strongly alkaline (pH 9.4); clear wavy boundary.
2By—38 to 46 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 3/3) moist; 20 percent clay; weak fine subangular blocky structure; very friable, slightly hard, slightly sticky, nonplastic; common very fine roots throughout; common very fine irregular pores; 5 percent fine faint strong brown (7.5YR 5/6) masses of oxidized iron; few fine gypsum masses in matrix; 5 percent gravel; slightly effervescent (2 percent calcium carbonate equivalent); 1 percent gypsum content; strongly alkaline (pH 9.0); clear wavy boundary.
2C—46 to 55 inches; brown (10YR 5/3) loamy sand, dark brown (10YR 3/3) moist; 5 percent clay; weak fine subangular blocky structure; loose, nonsticky, nonplastic; common very fine roots throughout; common very fine irregular pores; 5 percent fine faint strong brown (7.5YR 5/6) masses of oxidized iron; 5 percent gravel; noneffervescent; strongly alkaline (pH 8.8); clear wavy boundary.
3C—55 to 80 inches; dark grayish brown (10YR 4/2) clay, very dark grayish brown (10YR 3/2) moist; 40 percent clay; moderate fine subangular blocky structure, and moderate medium subangular blocky structure; firm, very hard, very sticky, very plastic; common very fine roots throughout; common very fine irregular pores; 5 percent fine distinct strong brown (7.5YR 5/6) masses of oxidized iron; 2 percent gravel; noneffervescent; strongly alkaline (pH 8.6).

**Range in Characteristics**

*Soil moisture:*
*Soil moisture regime subclass:* ustic
*Soil moisture regime class:* aridic (torric)
*Seasonal pattern:* The soil moisture control section is affected by peak precipitation in late summer and early fall. The soil is driest from November to March. The soil has the potential to be moist from April to October.
*Mean annual soil temperature:* 41 to 46 degrees F (5 to 7.8 centimeters)
*Mean summer soil temperature:* 63 to 66 degrees F (17.2 to 18.9 centimeters)
*Depth to diagnostic feature(s):* 0 inches (0 centimeters) to salt accumulations; 2 to 6 inches (5 to 15 centimeters) to the natric horizon; 16 to 26 inches (41 to 66 centimeters) to gypsum accumulations; 0 to 26 inches (8 to 66 centimeters) to secondary carbonates
*Thickness of diagnostic features:* The mollic epipedon is 10 or more inches (25 or more centimeters); the natric horizon is 25 to 55 inches (64 to 140 centimeters
*Linear extensibility:* weighted average RV is 5.6 percent
*Seasonal high water table:* from April through June
*Depth to top: 42 to 72 inches (107 to 183 centimeters)*

*Particle-size control section (weighted average):*
*Clay content:* 35 to 50 percent
*Sand content:* 15 to 35 percent
*Rock fragment content:* 0 to 15 percent

A horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 2 or 3 moist
*Chroma:* 2 or 3
*Texture:* silty clay loam
*Clay content:* 28 to 40 percent
*Carbonate clay content:* 2 to 8 percent
*Sand content:* 3 to 25 percent
*Silt content:* 40 to 70 percent
*Rock fragment content:* 0 to 5 percent indurated gravel derived from mixed sources
*Calcium carbonate equivalent:* 0 to 5 percent
*Gypsum content:* 0 to 5 percent
*Electrical conductivity:* 4 to 30 mmhos/cm
*Sodium adsorption ratio:* 13 to 100
*Reaction:* pH 8.5 to 9.6
*Organic matter content:* 1.0 to 2.0 percent

Btnz horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 2 to 4 moist
*Chroma:* 2 or 3
*Texture:* clay, silty clay, silty clay loam, clay loam
*Clay content:* 28 to 50 percent
*Carbonate clay content:* 2 to 10 percent
*Sand content:* 10 to 35 percent
*Silt content:* 25 to 50 percent
*Rock fragment content:* 0 to 5 percent indurated gravel derived from mixed sources
*Calcium carbonate equivalent:* 1 to 5 percent
*Gypsum content:* 0 to 5 percent

*Electrical conductivity:* 4 to 30 mmhos/cm
*Sodium adsorption ratio:* 13 to 100
*Reaction:* pH 8.5 to 9.6
*Organic matter content:* 0.5 to 1.5 percent

Btknyz horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 2 to 4 moist
*Chroma:* 2 or 3
*Texture:* clay loam, clay, silty clay
*Clay content:* 28 to 50 percent
*Carbonate clay content:* 4 to 15 percent
*Sand content:* 10 to 35 percent
*Silt content:* 25 to 50 percent
*Rock fragment content:* 0 to 5 percent indurated gravel derived from mixed sources
*Calcium carbonate equivalent:* 1 to 15 percent
*Gypsum content:* 1 to 5 percent
*Electrical conductivity:* 4 to 30 mmhos/cm
*Sodium adsorption ratio:* 13 to 100
*Reaction:* pH 8.5 to 9.6
*Organic matter content:* 0.0 to 0.5 percent

2By horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 2 to 4 moist
*Chroma:* 2 or 3
*Texture:* sandy clay loam, sandy loam
*Clay content:* 12 to 35 percent
*Carbonate clay content:* 2 to 8 percent
*Sand content:* 25 to 70 percent
*Silt content:* 20 to 45 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from mixed sources
*Calcium carbonate equivalent:* 1 to 5 percent
*Gypsum content:* 1 to 5 percent
*Electrical conductivity:* 2 to 16 mmhos/cm
*Sodium adsorption ratio:* 2 to 20
*Reaction:* pH 8.5 to 9.0
*Organic matter content:* 0.0 to 0.5 percent

2C horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 2 to 4 moist
*Chroma:* 2 or 3
*Texture:* loamy sand
*Clay content:* 5 to 15 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 70 to 85 percent
*Silt content:* 10 to 20 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from mixed sources
*Gypsum content:* 0 to 3 percent
*Electrical conductivity:* 2 to 16 mmhos/cm
*Sodium adsorption ratio:* 0 to 20

*Reaction:* pH 8.5 to 9.0
*Organic matter content:* 0.0 to 0.5 percent

3C horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 2 or 3
*Texture:* clay, clay loam
*Clay content:* 28 to 45 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 20 to 50 percent
*Silt content:* 20 to 45 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from mixed sources
*Gypsum content:* 0 to 1 percent
*Electrical conductivity:* 2 to 16 mmhos/cm
*Sodium adsorption ratio:* 0 to 20
*Reaction:* pH 8.5 to 9.0
*Base saturation:* Unspecified
*Organic matter content:* 0.0 to 0.5 percent

## Mirror Series

*Map unit(s):* MR
*Depth class:* moderately deep
*Drainage class:* well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Landform:* mountain slopes
*Position on landform:* mountainflank, upper third
*Parent material:* colluvium and residuum weathered from monzonite and diorite
*Elevation:* 11,000 to 12,500 feet (3,353 to 3,810 meters)
*Slope:* 40 to 60 percent
*Climatic data:*
*Mean annual precipitation:* 35 to 40 inches (889 to 1,016 millimeters)
*Mean annual air temperature:* 32 to 34 degrees F. (0.0 to 1.0 degrees C.)
*Frost-free period:* 10 to 30 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive Humic Dystrocryepts

**Typical Pedon**

*Map unit in which located:* Mirror-Rock outcrop complex, 40 to 70 percent slopes
*Location in survey area:* Mirror extremely cobbly loam; in an area of Mirror-Rock outcrop complex, 40 to 70 percent slopes; in rangeland; about 0.5 mile southwest of the USFS boundary and 0.8 mile east of the Costilla County line, T. 32 S., R. 69 W.; USGS El Valle Creek topographic quadrangle; 37 degrees 14 minutes 19.10 seconds north latitude and 105 degrees 8 minutes 34.40 seconds west longitude; UTM 487,327 meters E, 4,121,356 meters N, zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 40 percent gravel, 5 percent cobbles, and 5 percent stones

A—0 to 10 inches; very dark gray (10YR 3/1) extremely cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate very fine granular structure; very friable, soft, nonsticky, slightly plastic; 20 percent gravel, 20 percent stones, and 25 percent cobbles; noneffervescent; very strongly acid (pH 5.0); clear wavy boundary.

Bw—10 to 25 inches; brown (7.5YR 5/3) extremely cobbly loam, brown (7.5YR 4/3) moist; weak very fine granular structure; very friable, soft, slightly sticky, slightly plastic; 20 percent gravel, 20 percent stones, and 30 percent cobbles; noneffervescent; very strongly acid (pH 4.6); gradual wavy boundary.
R—25 to 60 inches; unweathered bedrock; indurated; hard fractured igneous rock.

**Range in Characteristics**

*Soil moisture:*
*Soil moisture regime subclass:* typic
*Soil moisture regime class:* udic
*Seasonal pattern:* moist continuously
*Mean annual soil temperature:* 33 to 35 degrees F.
*Mean summer soil temperature:* 38 to 42 degrees F.
*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)
*Depth to diagnostic feature(s):* 20 to 40 inches to lithic contact; 7 to 15 inches to the cambic horizon; 0 inches to the umbric epipedon
*Thickness of the umbric epipedon:* 7 to 15 inches

*Particle-size control section (weighted average):*
*Clay content:* 10 to 18 percent
*Sand content:* 40 to 60 percent
*Rock fragment content:* 35 to 70 percent

A horizon(s):
*Hue:* 7.5YR or 10YR
*Value:* 3 or 4 dry, 2 or 3 moist
*Chroma:* 1 or 2
*Clay content:* 10 to 18 percent
*Rock fragment content:* 0 to 2 percent fine gravel, 0 to 8 percent medium and coarse gravel, 14 to 45 percent cobbles, and 17 to 20 percent stones
*Reaction:* very strongly acid or strongly acid
*Organic matter content:* 3.0 to 7.0 percent
*Base saturation:* 20 to 40 percent

Bw horizon(s):
*Hue:* 5YR to 10YR
*Value:* 4 or 5 dry, 3 or 4 moist
*Chroma:* 3 or 4
*Texture:* extremely cobbly loam, extremely cobbly sandy loam
*Clay content:* 10 to 18 percent
*Rock fragment content:* 10 to 20 percent gravel, 20 to 35 percent cobbles, and 15 to 20 percent stones
*Reaction:* very strongly acid or strongly acid
*Organic matter content:* 0.5 to 3.0 percent
*Base saturation:* 30 to 60 percent

## Morval Series

*Map unit(s):* MuC, MuE, UmF
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* mountain slopes
*Parent material:* fine-loamy slope alluvium over residuum derived from granite, gneiss, and mica schist

*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)
*Slope:* 3 to 40 percent
*Climatic data:*
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

*Taxonomic class:* Fine-loamy, mixed, superactive, frigid Calcidic Argiustolls

**Typical Pedon**

*Map unit in which located:* Morval-Uracca complex, 5 to 35 percent slopes
*Location in survey area:* Morval loam; in an area of Morval-Uracca complex, 5 to 35 percent slopes; in shrub cover; Ojito USGS topographic quadrangle, NAD83; 37 degrees 20 minutes 52.64 seconds north latitude and 105 degrees 20 minutes 41.34 seconds west longitude; UTM 469,460 meters E, 4,133,529 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 25 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

A—0 to 3 inches; brown (7.5YR 4/2) loam, dark brown (7.5YR 3/2) moist; 11 percent clay; weak fine granular structure; friable, slightly hard, nonsticky, nonplastic; many very fine and fine roots throughout; 10 percent gravel; noneffervescent; neutral (pH 7.2); clear smooth boundary.
Bt1—3 to 7 inches; brown (7.5YR 4/3) loam, dark brown (7.5YR 3/3) moist; 22 percent clay; moderate fine subangular blocky structure; friable, slightly hard, slightly sticky, nonplastic; many very fine and fine roots throughout; 15 percent patchy distinct clay films on all faces of peds; 10 percent gravel; noneffervescent; neutral (pH 7.2); clear wavy boundary.
Bt2—7 to 10 inches; brown (7.5YR 4/3) loam, dark brown (7.5YR 3/3) moist; 24 percent clay; moderate fine subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; common very fine and fine roots throughout; 37 percent patchy distinct clay films on all faces of peds; 10 percent gravel; noneffervescent; neutral (pH 7.2); clear wavy boundary.
Bt3—10 to 18 inches; brown (7.5YR 5/3) loam, brown (7.5YR 4/3) moist; 24 percent clay; moderate fine subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; common very fine and fine roots throughout; 37 percent patchy distinct clay films on all faces of peds; 10 percent gravel; noneffervescent; slightly alkaline (pH 7.4); clear wavy boundary.
Btk—18 to 50 inches; light brown (7.5YR 6/3) loam, brown (7.5YR 5/3) moist; 22 percent clay; weak fine subangular blocky structure; friable, slightly hard, slightly sticky, nonplastic; common very fine and fine roots throughout; 15 percent patchy distinct clay films on all faces of peds; carbonate finely disseminated in matrix and calcium carbonate coatings located on gravel; 10 percent gravel; strongly effervescent (10 percent calcium carbonate equivalent); slightly alkaline (pH 7.6); clear wavy boundary.
Bk—50 to 80 inches; light brown (7.5YR 6/4) loam, brown (7.5YR 5/4) moist; 18 percent clay; weak fine subangular blocky structure; friable, slightly hard, nonsticky, nonplastic; few very fine and fine roots throughout; carbonate finely disseminated in matrix and distinct carbonate coatings located on gravel; 10 percent gravel; strongly effervescent (27 percent calcium carbonate equivalent); moderately alkaline (pH 7.9); gradual wavy boundary.

## Range in Characteristics

*Soil moisture:*
*Soil moisture regime subclass:* aridic (torric)
*Soil moisture regime class:* ustic
*Seasonal pattern:* The soil moisture control section is affected by snowmelt in early spring and peak precipitation occurring in the form of thunderstorms from June to September.
*Mean annual soil temperature:* 41 to 46 degrees F (5 to 7.8 degrees C)
*Mean summer soil temperature:* 63 to 66 degrees F (17.2 to 18.9 degrees C)

*Depth to diagnostic feature(s):* 2 to 10 inches (5 to 25 centimeters) to the argillic horizon; 16 to 55 inches (41 to 140 centimeters) to the calcic
*Thickness of diagnostic feature:* The mollic epipedon is 8 to 16 inches (20 to 41 centimeters); the argillic horizon is 8 to 50 inches (20 to 64 centimeters); the calcic horizon is 10 to 40 inches (25 to 102 centimeters)
*Linear extensibility:* weighted average RV is 2.4 percent
*Surface fragments:* 10 to 40 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

*Particle-size control section (weighted average):*
*Clay content:* 20 to 35 percent
*Sand content:* 35 to 70 percent
*Rock fragment content:* 5 to 25 percent

A horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 3 to 5 dry; 2 or 3 moist
*Chroma:* 2 or 3
*Texture:* loam
*Clay content:* 10 to 20 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 45 to 65 percent
*Silt content:* 20 to 45 percent
*Rock fragment content:* 0 to 15 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 1.2 to 3.0 percent

Bt horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 2 to 4 moist
*Chroma:* 3 or 4
*Texture:* sandy clay loam, clay loam, loam
*Clay content:* 18 to 28 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 35 to 55 percent
*Silt content:* 25 to 40 percent
*Rock fragment content:* 0 to 15 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 0.2 to 2.0 percent

Btk horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* sandy clay loam, loam, clay loam
*Clay content:* 18 to 28 percent
*Carbonate clay content:* 1 to 5 percent
*Sand content:* 35 to 55 percent
*Silt content:* 25 to 40 percent
*Rock fragment content:* 0 to 15 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 10 to 25 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.0 to 0.5 percent

Bk horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* loam, sandy loam, gravelly loam
*Clay content:* 10 to 20 percent
*Carbonate clay content:* 1 to 5 percent
*Sand content:* 40 to 60 percent
*Silt content:* 20 to 40 percent
*Rock fragment content:* 0 to 15 percent total, consisting of 0 to 15 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 15 to 40 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.9 to 8.4
*Organic matter content:* 0.0 to 0.5 percent

## Mosca Series

*Map unit(s):* MsA
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Landform:* alluvial flats
*Parent material:* coarse-loamy alluvium derived from granite, gneiss, and mica schist
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Slope:* 0 to 2 percent
*Climatic data:*
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Coarse-loamy, mixed, superactive, frigid Typic Natrargids

**Typical Pedon**

*Map unit in which located:* Mosca loamy fine sand, 0 to 2 percent slopes
*Location in survey area:* Mosca loamy sand; Baldy USGS topographic quadrangle; 37 degrees 23 minutes 52.57 seconds north latitude and 105 degrees 41 minutes 37.32 seconds west longitude; NAD83; UTM 438,600 meters E, 4,139,244 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 10 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

A—0 to 6 inches; brown (7.5YR 4/3) loamy sand, dark brown (7.5YR 3/3) moist; 6 percent clay; weak fine granular structure; very friable, soft, nonsticky, nonplastic; many very fine and fine roots throughout; common very fine irregular pores; 5 percent gravel; noneffervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

Btn—6 to 12 inches; brown (7.5YR 5/3) sandy loam, brown (7.5YR 4/3) moist; 16 percent clay; strong coarse columnar structure; friable, hard, slightly sticky, nonplastic; many very fine and fine roots throughout; common very fine dendritic tubular pores; discontinuous faint clay films between sand grains; 5 percent gravel; noneffervescent; very strongly alkaline (pH 9.2); clear wavy boundary.

Btkn1—12 to 20 inches; light brown (7.5YR 6/3) sandy loam, brown (7.5YR 4/3) moist; 16 percent clay; moderate medium angular blocky structure parting to moderate fine angular blocky structure; friable, hard, slightly sticky, nonplastic; common very fine and few fine roots throughout; common very fine dendritic tubular pores; discontinuous faint clay films between sand grains; carbonate, finely disseminated throughout and 10 percent medium irregular carbonate masses in matrix; 5 percent gravel; slightly effervescent (7 percent calcium carbonate equivalent); very strongly alkaline (pH 9.4); gradual wavy boundary.

Btkn2—20 to 38 inches; light brown (7.5YR 6/3) sandy loam, brown (7.5YR 5/3) moist; 12 percent clay; weak fine subangular blocky structure; very friable, slightly hard, nonsticky, nonplastic; few very fine roots throughout; common very fine irregular pores; patchy faint clay films between sand grains; carbonate, finely disseminated throughout and 25 percent medium irregular carbonate masses in matrix; 5 percent gravel; strongly effervescent (20 percent calcium carbonate equivalent); strongly alkaline (pH 9.0); abrupt wavy boundary.

2Bk—38 to 50 inches; light brown (7.5YR 6/3) loamy sand, brown (7.5YR 4/3) moist; 7 percent clay; single grain; loose, nonsticky, nonplastic; few very fine roots throughout; common very fine irregular pores; 10 percent fine irregular carbonate masses around rock fragments and 10 percent fine threadlike carbonate masses lining pores; 5 percent gravel; slightly effervescent (5 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); clear wavy boundary.

2C—50 to 80 inches; light brown (7.5YR 6/3) very gravelly sand, brown (7.5YR 4/3) moist; 2 percent clay; single grain; loose, nonsticky, nonplastic; common very fine interstitial pores; 50 percent gravel; noneffervescent (2 percent calcium carbonate equivalent); neutral (pH 7.2).

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* Precipitation peaks in July and August occurring mostly as intense summer thunderstorms.

*Mean annual soil temperature:* 41 to 46 degrees F (5 to 7.8 degrees C)

*Mean summer soil temperature:* 59 to 63 degrees F (15 to 17.2 degrees C)

*Depth to diagnostic feature(s):* 4 to 8 inches (10 to 20 centimeters) to the natric horizon

*Thickness of diagnostic feature:* The natric horizon is 6 to 16 inches (15 to 41 centimeters)

*Linear extensibility:* weighted average RV is 0.7 percent

*Surface fragments:* 10 to 20 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

*Particle-size control section (weighted average):*
*Clay content:* 12 to 18 percent
*Sand content:* 52 to 75 percent
*Rock fragment content:* 0 to 15 percent

A horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 3 or 4
*Texture:* loamy sand
*Clay content:* 8 to 14 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 80 to 89 percent
*Silt content:* 0 to 10 percent
*Rock fragment content:* 0 to 10 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Electrical conductivity:* 4 to 8 mmhos/cm
*Sodium adsorption ratio:* 2 to 10
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.2 to 0.8 percent

Btn horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* sandy loam
*Clay content:* 12 to 18 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 78 to 89 percent
*Silt content:* 0 to 15 percent
*Rock fragment content:* 0 to 10 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Electrical conductivity:* 4 to 8 mmhos/cm
*Sodium adsorption ratio:* 13 to 30
*Reaction:* pH 8.5 to 9.6
*Organic matter content:* 0.0 to 0.5 percent

Btkn horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* sandy loam
*Clay content:* 12 to 18 percent
*Carbonate clay content:* 1 to 8 percent
*Sand content:* 53 to 83 percent
*Silt content:* 0 to 32 percent
*Rock fragment content:* 0 to 10 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 5 to 20 percent
*Electrical conductivity:* 8 to 16 mmhos/cm
*Sodium adsorption ratio:* 13 to 30
*Reaction:* pH 8.5 to 9.6
*Organic matter content:* 0.0 to 0.5 percent

2Bk horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* loamy sand
*Clay content:* 0 to 10 percent
*Carbonate clay content:* 1 to 4 percent
*Sand content:* 70 to 82 percent
*Silt content:* 0 to 30 percent
*Rock fragment content:* 0 to 10 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 5 to 15 percent
*Electrical conductivity:* 4 to 8 mmhos/cm
*Sodium adsorption ratio:* 5 to 13
*Reaction:* pH 7.9 to 9.6
*Organic matter content:* 0.0 to 0.5 percent

2C horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* very gravelly sand
*Clay content:* 0 to 6 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 87 to 100 percent
*Silt content:* 0 to 11 percent
*Rock fragment content:* 35 to 60 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 10 percent
*Electrical conductivity:* 2 to 4 mmhos/cm
*Sodium adsorption ratio:* 0 to 5
*Reaction:* pH 6.6 to 8.4
*Organic matter content:* 0.0 to 0.5 percent

## Potrio Series

*Map unit(s):* PtC, SpD, SpF
*Depth class:* deep
*Drainage class:* well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* mesas
*Position on landform:* summit
*Parent material:* loamy slope alluvium derived from basalt
*Elevation:* 7,700 to 9,100 feet (2,347 to 2,774 meters)
*Slope:* 1 to 65 percent
*Climatic data:*
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

*Taxonomic class:* Fine-loamy, mixed, superactive, frigid Calcidic Haplustalfs

**Typical Pedon**

*Map unit in which located:* Potrio gravelly silt loam, 1 to 6 percent slopes

*Location in survey area:* Potrio gravelly silt loam; Sanchez Reservoir USGS topographic quadrangle, NAD83; 37 degrees 5 minutes 41.65 seconds north latitude and 105 degrees 27 minutes 32.83 seconds west longitude; UTM 459,200 meters E, 4,105,499 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 30 percent subangular indurated gravel derived from basalt

A—0 to 4 inches; brown (7.5YR 4/3) gravelly silt loam, very dark brown (7.5YR 2.5/3) moist; 17 percent clay; weak fine granular structure; friable, soft, slightly sticky, slightly plastic; common fine and coarse roots throughout; common very fine irregular pores; 20 percent gravel; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.

Bt—4 to 15 inches; brown (7.5YR 5/4) gravelly silt loam, dark brown (7.5YR 3/4) moist; 22 percent clay; moderate fine and medium subangular blocky structure; friable, moderately hard, moderately sticky, moderately plastic; common fine roots and medium roots throughout; common very fine dendritic tubular pores; 60 percent clay films on faces of peds; 20 percent gravel; noneffervescent; slightly alkaline (pH 7.4); gradual wavy boundary.

Btk1—15 to 24 inches; light brown (7.5YR 6/3) gravelly silt loam, brown (7.5YR 4/3) moist; 22 percent clay; moderate medium subangular blocky structure; friable, moderately hard, moderately sticky, moderately plastic; common fine and medium roots throughout; common very fine dendritic tubular pores; 60 percent clay films on faces of peds; fine irregular carbonate, finely disseminated throughout and fine threadlike carbonate masses infused into matrix adjacent to pores; 25 percent gravel; strongly effervescent (7 percent calcium carbonate equivalent); slightly alkaline (pH 7.6); gradual wavy boundary.

Btk2—24 to 30 inches; light brown (7.5YR 6/4) gravelly silt loam, brown (7.5YR 4/4) moist; 20 percent clay; moderate medium subangular blocky structure; friable, moderately hard, moderately sticky, moderately plastic; common fine and medium roots throughout; common very fine dendritic tubular pores; 30 percent clay films on faces of peds; fine threadlike carbonate masses infused into matrix adjacent to pores and fine irregular carbonate, finely disseminated throughout; 30 percent gravel; strongly effervescent (16 percent calcium carbonate equivalent); slightly alkaline (pH 7.8); gradual wavy boundary.

Btk3—30 to 36 inches; pink (7.5YR 7/3) very cobbly loam, brown (7.5YR 5/3) moist; 18 percent clay; weak fine subangular blocky structure; friable, moderately hard, moderately sticky, moderately plastic; common fine and medium roots throughout; common very fine dendritic tubular pores; 15 percent clay films on faces of peds; fine irregular carbonate masses throughout; 25 percent gravel and 15 percent cobbles; violently effervescent (42 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); gradual wavy boundary.

Bk—36 to 42 inches; pinkish white (7.5YR 8/2) extremely cobbly sandy loam, light brown (7.5YR 6/3) moist; 14 percent clay; massive; very friable, moderately hard, nonsticky, nonplastic; common fine and medium roots throughout; common very fine dendritic tubular pores; fine irregular carbonate masses throughout; 40 percent gravel and 30 percent cobbles; violently effervescent (50 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); abrupt irregular boundary.

R—42 inches; fractured basalt.

**Range in Characteristics**

*Soil moisture:*
*Soil moisture regime subclass:* aridic (torric)
*Soil moisture regime class:* ustic
*Seasonal pattern:* The soil moisture control section is affected by precipitation in late summer and early fall. The soil is driest from November to March. The soil has the potential to be moist from April to October.
*Mean annual soil temperature:* 41 to 46 degrees F (5 to 7.8 degrees C)
*Mean summer soil temperature:* 63 to 66 degrees F (17.2 to 18.9 degrees C)
*Depth to restrictive feature:* 40 to 60 inches (102 to 152 centimeters) to lithic bedrock
*Depth to diagnostic feature(s):* the argillic horizon is 2 to 6 inches (5 to 15 centimeters); the calcic horizon is 10 to 40 inches (25 to 102 centimeters); lithic contact is 40 to 60 inches (102 to 152 centimeters)
*Thickness of diagnostic feature:* The argillic horizon is 5 to 11 inches (13 to 28 centimeters); the calcic horizon is 6 to 12 inches (15 to 30 centimeters)
*Linear extensibility:* weighted average RV is 2.1 percent
*Surface fragments:* 15 to 35 percent subangular indurated basalt gravel

*Particle-size control section (weighted average):*
*Clay content:* 18 to 32 percent
*Sand content:* 30 to 52 percent
*Rock fragment content:* 15 to 35 percent

A horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 2 or 3 moist
*Chroma:* 2 or 3
*Texture:* gravelly silt loam
*Clay content:* 12 to 24 percent
*Sand content:* 20 to 55 percent
*Silt content:* 35 to 77 percent
*Rock fragment content:* 15 to 35 percent total, consisting of 15 to 30 percent indurated gravel and 5 percent indurated cobbles derived from basalt
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 1.0 to 3.0 percent

Bt horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 3 or 4
*Texture:* gravelly loam, gravelly silt loam
*Clay content:* 18 to 26 percent
*Sand content:* 20 to 52 percent
*Silt content:* 35 to 77 percent
*Rock fragment content:* 15 to 35 percent total, consisting of 15 to 30 percent indurated gravel and 0 to 5 percent indurated cobbles derived from basalt
*Calcium carbonate equivalent:* 0 to 2 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 0.5 to 1.5 percent

Btk horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 6 or 7 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* gravelly clay loam, gravelly silt loam, gravelly loam, very cobbly loam
*Clay content:* 15 to 30 percent
*Sand content:* 20 to 52 percent
*Silt content:* 28 to 77 percent
*Rock fragment content:* 15 to 60 percent total, consisting of 15 to 35 percent indurated gravel and 0 to 25 percent indurated cobbles derived from basalt
*Calcium carbonate equivalent:* 1 to 45 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 8.4
*Organic matter content:* 0.0 to 0.8 percent

Bk horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 7 or 8 dry; 6 or 7 moist
*Chroma:* 2 or 3
*Texture:* extremely cobbly sandy loam, very cobbly sandy loam
*Clay content:* 12 to 20 percent
*Sand content:* 52 to 73 percent
*Silt content:* 15 to 35 percent
*Rock fragment content:* 35 to 75 percent total, consisting of 25 to 40 percent indurated gravel and 10 to 35 percent indurated cobbles derived from basalt
*Calcium carbonate equivalent:* 15 to 45 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.9 to 9.0
*Organic matter content:* 0.0 to 0.5 percent

R horizon(s): fractured basalt.

## Sanpedro Series

*Map unit(s):* SpD, SpF
*Depth class:* shallow
*Drainage class:* well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* mesas, scarp
*Parent material:* loamy slope alluvium over residuum derived from basalt
*Elevation:* 7,700 to 9,100 feet (2,347 to 2,774 meters)
*Slope:* 3 to 65 percent
*Climatic data:*
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive, frigid Aridic Lithic Argiustolls

**Typical Pedon**

*Map unit in which located:* Sanpedro-Potrio-Rock outcrop complex, 9 to 65 percent slopes
*Location in survey area:* San Pedro very cobbly silt loam; Sanchez Res USGS topographic quadrangle, NAD83; 37 degrees 2 minutes 2.34 seconds north latitude and 105 degrees 27 minutes 58.92 seconds west longitude; UTM

458,523 meters E, 4,098,744 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 50 percent subangular gravel and 10 percent subangular cobbles derived from basalt

A—0 to 2 inches; brown (7.5YR 4/3) very cobbly silt loam, very dark brown (7.5YR 2.5/2), moist; 15 percent clay; weak fine granular structure; friable, soft, slightly sticky, slightly plastic; common very fine roots and medium roots throughout; common very fine irregular pores; 20 percent gravel and 20 percent cobbles; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.

Bt—2 to 7 inches; brown (7.5YR 4/3) very cobbly silt loam, dark brown (7.5YR 3/3), moist; 20 percent clay; moderate fine subangular blocky structure; friable, slightly hard, moderately sticky, moderately plastic; common very fine and medium roots throughout; common very fine dendritic tubular pores; many clay films on faces of peds; 25 gravel and 25 percent cobbles; noneffervescent; slightly alkaline (pH 7.4); clear wavy boundary.

Btk—7 to 11 inches; brown (7.5YR 4/3) extremely cobbly silt loam, dark brown (7.5YR 3/3), moist; 20 percent clay; moderate fine subangular blocky structure; friable, slightly hard, moderately sticky, moderately plastic; common very fine and medium roots throughout; common very fine dendritic tubular pores; many distinct clay films on faces of peds; few fine carbonate masses in matrix; 30 percent gravel and 30 percent cobbles; slightly effervescent (25 percent calcium carbonate equivalent); slightly alkaline (pH 7.6); clear wavy boundary.

Bk—11 to 17 inches; brown (7.5YR 4/3) extremely cobbly loam, dark brown (7.5YR 3/3), moist; 16 percent clay; weak fine subangular blocky structure; friable, soft, slightly sticky, slightly plastic; common very fine and medium roots throughout; common very fine dendritic tubular pores; many medium carbonate masses in matrix; 35 percent gravel and 35 percent cobbles; strongly effervescent(50 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); abrupt irregular boundary.

R—17 inches; fractured basalt.

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* The soil moisture control section is affected by snowmelt in early spring and peak precipitation occurring in the form of thunderstorms from June to September.

*Mean annual soil temperature:* 41 to 46 degrees F (5 to 7.8 degrees C)

*Mean summer soil temperature:* 63 to 66 degrees F (17.2 to 18.9 degrees C)

*Depth to restrictive feature:* 10 to 20 inches (25 to 51 centimeters) to lithic bedrock

*Depth to diagnostic feature(s):* 2 to 4 inches (5 to 10 centimeters) to the argillic horizon; 6 to 13 inches (15 to 33 centimeters) to the calcic horizon; 10 to 20 inches (25 to 51 centimeters) to lithic contact

*Thickness of diagnostic feature:* The mollic epipedon is 2 to 11 inches (5 to 28 centimeters); the argillic horizon is 4 to 10 inches (10 to 25 centimeters); the calcic horizon is 0 to 6 inches (0 to 15 centimeters)

*Linear extensibility:* weighted average RV is 1.1 percent

*Surface fragments:* 30 to 50 percent subangular indurated gravel and 5 to 10 percent subangular indurated cobbles derived from basalt

*Particle-size control section (weighted average):*
*Clay content:* 22 to 35 percent
*Sand content:* 25 to 52 percent
*Rock fragment content:* 20 to 35 percent gravel and 15 to 25 percent cobbles derived from basalt

A horizon(s)
*Hue:* 7.5YR and 10YR
*Value:* 3 or 4 dry; 2 or 3 moist
*Chroma:* 2 or 3
*Texture:* very cobbly silt loam
*Clay content:* 12 to 22 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 20 to 40 percent
*Silt content:* 40 to 70 percent
*Rock fragment content:* 35 to 60 percent total, consisting of 20 to 35 percent indurated gravel and 15 to 25 percent indurated cobbles derived from basalt
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 2.0 to 10.0 percent

Bt horizon(s)
*Hue:* 7.5YR and 10YR
*Value:* 4 or 5 dry; 2 or 3 moist
*Chroma:* 2 or 3
*Texture:* very cobbly silt loam, very cobbly loam
*Clay content:* 18 to 26 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 25 to 52 percent
*Silt content:* 40 to 65 percent
*Rock fragment content:* 35 to 60 percent total, consisting of 20 to 35 percent indurated gravel and 15 to 25 percent indurated cobbles derived from basalt
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 1.5 to 3.0 percent

Btk horizon(s)
*Hue:* 7.5YR and 10YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 2 or 3
*Texture:* extremely cobbly silt loam, very cobbly silt loam, extremely cobbly loam,
*Clay content:* 18 to 26 percent
*Carbonate clay content:* 1 to 5 percent
*Sand content:* 25 to 52 percent
*Silt content:* 40 to 65 percent
*Rock fragment content:* 35 to 85 percent total, consisting of 20 to 45 percent indurated gravel and 15 to 40 percent indurated cobbles derived from basalt
*Calcium carbonate equivalent:* 15 to 40 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 1.2 to 2.0 percent

Bk horizon(s)
*Hue:* 7.5YR and 10YR
*Value:* 4 to 6 dry; 3 to 5 moist
*Chroma:* 2 or 3
*Texture:* extremely cobbly loam, very cobbly sandy loam
*Clay content:* 10 to 22 percent
*Carbonate clay content:* 1 to 7 percent
*Sand content:* 40 to 52 percent
*Silt content:* 28 to 60 percent
*Rock fragment content:* 35 to 85 percent total, consisting of 20 to 45 percent indurated gravel and 15 to 40 percent indurated cobbles derived from basalt
*Calcium carbonate equivalent:* 20 to 55 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.9 to 8.4
*Organic matter content:* 1.0 to 1.5 percent

R horizon(s); fractured basalt

## Scandard Series

*Map unit(s):* SL
*Depth class:* moderately deep
*Drainage class:* well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* mountain slopes
*Position on landform:* mountainflank
*Parent material:* colluvium and residuum weathered from sandstone
*Elevation:* 8,000 to 9,800 feet (2,439 to 2,987 meters)
*Slope:* 20 to 60 percent
*Climatic data:*
*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)
*Mean annual air temperature:* 39 to 42 degrees F. (4.0 to 5.5 degrees C.)
*Frost-free period:* 50 to 80 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive Ustollic Haplocryalfs

**Typical Pedon**

*Map unit in which located:* Scandard-Leadville-Rock outcrop complex, 35 to 60 percent slopes, stony
*Location in survey area:* Scandard cobbly sandy loam; in an area of Scandard-Leadville-Rock outcrop complex, 35 to 60 percent slopes, stony; in forest land; about 1.6 miles east of Costilla County line and 3 miles north of the New Mexico State line, T. 34 S., R. 69 W.; USGS Culebra Peak topographic quadrangle; 37 degrees 2 minutes 7.00 seconds north latitude and 105 degrees 7 minutes 33.90 seconds west longitude; UTM 488,797 meters E, 4,098,801 meters N, zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 10 percent cobbles and 5 percent stones derived from sandstone

Oi—0 to 1 inch; slightly decomposed plant material; dominantly moss, needles and twigs; 5 percent stones, 10 percent gravel, and 15 percent cobbles.
A—1 inch to 7 inches; dark reddish brown (5YR 3/2) cobbly sandy loam, dark reddish brown (5YR 2/2) moist; 18 percent clay; moderate fine granular structure; friable, soft, nonsticky, nonplastic; many fine and medium roots throughout; 5 percent

stones, 10 percent gravel, and 15 percent cobbles; noneffervescent; neutral (pH 7.0); clear smooth boundary.
E—7 to 11 inches; weak red (2.5YR 5/2) very gravelly sandy loam, weak red (2.5YR 4/2) moist; weak fine granular structure; friable, soft, nonsticky, nonplastic; many fine and medium roots throughout; 10 percent cobbles and 30 percent gravel; noneffervescent; neutral (pH 6.6); clear wavy boundary.
Bt1—11 to 18 inches; weak red (10R 5/3) very gravelly sandy clay loam, weak red (10R 4/3) moist; moderate medium subangular blocky structure; friable, hard, slightly sticky, slightly plastic; many fine and medium roots throughout; 30 percent clay films on all faces of peds; 5 percent cobbles and 35 percent gravel; noneffervescent; slightly acid (pH 6.4); clear smooth boundary.
Bt2—18 to 25 inches; weak red (10R 4/4) very gravelly sandy clay loam, dusky red (10R 3/4) moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; many fine and medium roots throughout; 20 percent clay films on all faces of peds; 45 percent gravel; noneffervescent; slightly acid (pH 6.4); gradual wavy boundary.
Cr—25 to 27 inches; weathered bedrock; weakly cemented; soft fractured sandstone.
R—27 to 60 inches; unweathered bedrock; indurated; hard red sandstone.

**Range in Characteristics**

*Soil moisture:*
*Soil moisture regime subclass:* ustic
*Soil moisture regime class:* udic
*Seasonal pattern:* moist continuously through the year with peak periods April through August
*Mean annual soil temperature:* 40 to 45 degrees F.
*Mean summer soil temperature:* 46 to 47 degrees F.
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock
*Depth to the base of the argillic horizon:* 20 to 40 inches
*Depth to diagnostic feature(s):* 20 to 40 inches to lithic contact; 4 to 9 inches to albic materials; 8 to 17 inches to the argillic horizon; 0 to 3 inches to the ochric epipedon
*Thickness of the argillic horizon:* 12 to 26 inches

*Particle-size control section (weighted average):*
*Clay content:* 20 to 35 percent
*Sand content:* 50 to 70 percent
*Rock fragment content:* 35 to 60 percent

A horizon(s):
*Hue:* 2.5YR to 7.5YR
*Value:* 3 to 5 dry, 2 or 3 moist
*Chroma:* 1 to 3
*Clay content:* 10 to 20 percent
*Rock fragment content:* 2 to 5 percent fine gravel, 3 to 10 percent medium and coarse gravel, 10 to 15 percent cobbles, and 0 to 5 percent stones derived from sandstone
*Reaction:* slightly acid or neutral
*Organic matter content:* 1.0 to 3.0 percent
*Cation exchange capacity:* 8.9 to 17.3 meq/100 grams

E horizon(s):
*Hue:* 10R to 5YR
*Value:* 5 to 7 dry, 4 or 5 moist
*Chroma:* 2 to 4
*Texture:* very gravelly sandy loam, very cobbly sandy loam

*Clay content:* 10 to 20 percent
*Rock fragment content:* 5 to 15 percent fine gravel, 20 to 25 percent medium and coarse gravel, 10 to 15 percent cobbles, and 0 to 5 percent stones derived from sandstone
*Reaction:* moderately acid or slightly acid
*Organic matter content:* 0.5 to 1.0 percent
*Cation exchange capacity:* 8.6 to 16.6 meq/100 grams

Bt horizon(s):
*Hue:* 10R to 5YR
*Value:* 4 to 6 dry, 3 to 5 moist
*Chroma:* 3 to 6
*Texture:* very cobbly sandy clay loam, very gravelly sandy clay loam
*Clay content:* 20 to 35 percent
*Sand content: 50 to 75 percent, dominantly fine sand and coarser*
*Rock fragment content:* 35 to 60 percent total, consisting of 10 to 15 percent fine gravel, 20 to 35 percent medium and coarse gravel, 0 to 15 percent cobbles, and 0 to 5 percent stones derived from sandstone
*Reaction:* moderately acid or slightly acid
*Organic matter content:* 0.0 to 0.5 percent
*Cation exchange capacity:* 14.2 to 26.7 meq/100 grams

## Seitz Series

*Map unit(s):* SzF
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* .06 to 0.2 in./hr. (slow)
*Landform:* mountain slope
*Position on landform:* mountainflank
*Parent material:* gravelly slope alluvium over colluvium derived from granite, gneiss, and mica schist
*Elevation:* 8,500 to 11,000 feet (2,591 to 3,353 meters)
*Slope:* 10 to 65 percent
*Climatic data:*
*Mean annual precipitation:* 16 to 25 inches (406 to 635 millimeters)
*Mean annual air temperature:* 33 to 41 degrees F. (0.6 to 5.0 degrees C.)
*Frost-free period:* 40 to 70 days

*Taxonomic class:* Clayey-skeletal, smectitic Ustic Glossocryalfs

**Typical Pedon**

*Map unit in which located:* Seitz-Tolvar complex, 10 to 65 percent slopes
*Location in survey area:* Seitz very gravelly sandy loam; in an area of Seitz-Tolvar complex, 10 to 65 percent slopes; in forest land; Taylor Ranch USGS topographic quadrangle, NAD83; 37 degrees 13 minutes 32.49 seconds north latitude and 105 degrees 19 minutes 43.00 seconds west longitude; UTM 470,848 meters E, 4,119,960 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* 40 percent subrounded indurated gravel, 10 percent subrounded indurated cobbles ,and 1 percent subrounded indurated stones derived from granite, gneiss, and mica schist

Oi—0 to 1 inch; moderately decomposed plant material; moderately acid (pH 5.6); abrupt smooth boundary.
E—1 inch to 12 inches; brown (7.5YR 5/3) very gravelly sandy loam, brown (7.5YR

4/3) moist; 16 percent clay; weak fine subangular blocky structure; friable, nonsticky, nonplastic; many very fine, fine and medium roots throughout; 25 percent gravel and 10 percent cobbles; noneffervescent; slightly acid (pH 6.4); abrupt wavy boundary.

Bt/E—12 to 18 inches; 70 percent strong brown (7.5YR 5/6) very gravelly clay loam, strong brown (7.5YR 4/6) moist and 30 percent brown (7.5YR 5/3) very gravelly sandy loam, brown (7.5YR 4/3) moist; 38 percent clay (Bt), 16 percent clay (E); moderate medium subangular blocky structure to weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; common very fine, fine and medium roots throughout; 30 percent gravel and 10 percent cobbles; noneffervescent; slightly acid (pH 6.2); gradual wavy boundary.

Bt—18 to 40 inches; strong brown (7.5YR 5/6) very gravelly clay loam, strong brown (7.5YR 4/6) moist; 38 percent clay; moderate medium subangular blocky structure; friable, moderately sticky, slightly plastic; few very fine, fine and medium roots throughout; 70 percent clay films on all faces of peds; 35 percent gravel and 15 percent cobbles; noneffervescent; slightly acid (pH 6.2); gradual wavy boundary.

BCt—40 to 55 inches; yellowish brown (10YR 5/4) extremely gravelly sandy clay loam, dark yellowish brown (10YR 4/4), moist; 24 percent clay; weak fine subangular blocky structure; friable, slightly sticky, nonplastic; few fine and medium roots throughout; 37 percent clay films on bottom surfaces of rock fragments; 45 percent gravel and 20 percent cobbles; noneffervescent; slightly acid (pH 6.4); gradual wavy boundary.

C—55 to 80 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, brown (10YR 5/3) moist; 16 percent clay; massive; friable, nonsticky, nonplastic; few medium roots throughout; 45 percent gravel and 20 percent cobbles; noneffervescent; neutral (pH 6.6).

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* udic

*Seasonal pattern:* The soil moisture control section is affected by snowmelt in early spring and peak precipitation occurring in the form of thunderstorms from June to September.

*Mean annual soil temperature:* 34 to 44 degrees F (1.1 to 6.7 degrees C)

*Mean summer soil temperature:* 42 to 48 degrees F (5.6 to 8.9 degrees C)

*Depth to diagnostic feature(s):* 0 to 2 inches (0 to 5 centimeters) to the albic horizon; 9 to 41 inches (23 to 104 centimeters) to the glossic horizon; 9 to 41 inches (23 to 104 centimeters) to the argillic horizon

*Thickness of diagnostic feature:* The albic horizon is 3 to 11 inches (8 to 28 centimeters); the glossic horizon is 2 to 6 inches (4 to 15 centimeters); the argillic horizon is 6 to 22 inches (15 to 56 centimeters)

*Linear extensibility:* weighted average RV is 2.2 percent

*Surface fragments:* 20 to 50 percent subrounded indurated gravel, 5 to 20 percent subrounded indurated cobbles, and 0 to 5 percent subrounded indurated stones derived from granite, gneiss, and mica schist

*Particle-size control section (weighted average):*

*Clay content:* 35 to 45 percent

*Sand content:* 25 to 45 percent

*Rock fragment content:* 35 to 75 percent

Oi horizon(s)
*Texture:* slightly decomposed plant material
*Reaction:* pH 5.1 to 6.0
*Organic matter content:* 75.0 to 95.0 percent

E horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 2 or 3
*Texture:* very gravelly sandy loam
*Clay content:* 8 to 18 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 52 to 75 percent
*Silt content:* 15 to 35 percent
*Rock fragment content:* 35 to 60 percent total, consisting of 25 to 45 percent indurated gravel and 10 to 15 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Reaction:* pH 6.1 to 7.3
*Organic matter content:* 1.0 to 2.0 percent

Bt/E horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 3 to 6 dry; 2 to 5 moist
*Chroma:* 2 to 6
*Texture:* very gravelly clay loam (Bt), very gravelly clay (Bt), very gravelly sandy loam (E), very gravelly loam (E)
*Clay content:* 8 to 50 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 35 to 60 percent
*Silt content:* 20 to 40 percent
*Rock fragment content:* 35 to 60 percent total, consisting of 25 to 45 percent indurated gravel and 10 to 15 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Reaction:* pH 6.1 to 7.3
*Organic matter content:* 0.5 to 1.5 percent

Bt horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 3 to 5 dry; 2 to 4 moist
*Chroma:* 4 to 6
*Texture:* very gravelly clay loam, very gravelly clay
*Clay content:* 28 to 50 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 20 to 45 percent
*Silt content:* 20 to 40 percent
*Rock fragment content:* 35 to 60 percent total, consisting of 25 to 40 percent indurated gravel and 10 to 20 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Reaction:* pH 6.1 to 7.3
*Organic matter content:* 0.2 to 1.0 percent

BCt horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 3 to 5 dry; 3 or 4 moist
*Chroma:* 3 to 5
*Texture:* extremely gravelly sandy clay loam, very gravelly loam
*Clay content:* 20 to 35 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 35 to 60 percent
*Silt content:* 15 to 35 percent
*Rock fragment content:* 35 to 75 percent total, consisting of 20 to 45 percent indurated gravel and 15 to 30 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Reaction:* pH 6.1 to 7.3
*Organic matter content:* 0.0 to 0.5 percent

C horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 3 or 4
*Texture:* extremely gravelly sandy loam, very gravelly sandy loam
*Clay content:* 10 to 20 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 52 to 75 percent
*Silt content:* 15 to 35 percent
*Rock fragment content:* 35 to 80 percent total, consisting of 20 to 45 percent indurated gravel and 15 to 35 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Reaction:* pH 6.1 to 7.3
*Organic matter content:* 0.0 to 0.5 percent

## Shawa Series

*Map unit(s):* ShA, ShC
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* stream terrace, fan remnant
*Parent material:* fine-loamy alluvium derived from granite, gneiss, and mica schist
*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)
*Slope:* 0 to 9 percent
*Climatic data:*
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

*Taxonomic class:* Fine-loamy, mixed, superactive, frigid Pachic Haplustolls

**Typical Pedon**

*Map unit in which located:* Shawa fine sandy loam, 0 to 3 percent slopes
*Location in survey area:* Shawa fine sandy loam; Fort Garland USGS topographic quadrangle, NAD83; 37 degrees 25 minutes 58.60 seconds north latitude and 105 degrees 23 minutes 59.30 seconds west longitude; UTM 464,629 meters E, 4,142,977 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 20 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

A1—0 to 7 inches; brown (7.5YR 4/3) fine sandy loam, dark brown (7.5YR 3/2) moist; 16 percent clay; weak fine granular structure; friable, slightly hard, slightly sticky, slightly plastic; common very fine roots throughout; common very fine tubular pores; 5 percent gravel; noneffervescent; neutral (pH 7.0); clear smooth boundary.

A2—7 to 28 inches; brown (7.5YR 4/3) loam, dark brown (7.5YR 3/2) moist; 22 percent clay; weak fine subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; common very fine roots throughout; common very fine tubular pores; 5 percent gravel; noneffervescent; neutral (pH 7.2); gradual wavy boundary.

A3—28 to 42 inches; brown (7.5YR 4/3) loam, dark brown (7.5YR 3/2) moist; 22 percent clay; weak fine subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; common very fine roots throughout; common very fine tubular pores; 10 percent gravel; noneffervescent; neutral (pH 7.2); clear wavy boundary.

C—42 to 80 inches; brown (7.5YR 5/3) gravelly sandy loam, brown (7.5YR 4/3) moist; 16 percent clay; weak fine subangular blocky structure; very friable, soft, nonsticky, nonplastic; common very fine roots throughout; common very fine irregular pores; 20 percent gravel; very slightly effervescent; slightly alkaline (pH 7.6).

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* The soil moisture control section is affected by snowmelt in early spring and peak precipitation occurring in the form of thunderstorms from June to September.

*Mean annual soil temperature:* 41 to 46 degrees F (5 to 7.8 degrees C)

*Mean summer soil temperature:* 63 to 66 degrees F (17.2 to 18.9 degrees C)

*Thickness of diagnostic feature:* Mollic epipedon is 16 to 45 inches (41 to 114 centimeters)

*Linear extensibility:* weighted average RV is 3.3 percent

*Surface fragments:* 15 to 35 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

*Particle-size control section (weighted average):*

*Clay content:* 18 to 27 percent

*Sand content:* 30 to 50 percent

*Rock fragment content:* 0 to 30 percent subrounded indurated gravel

A horizon(s)

*Hue:* 7.5YR or 10YR

*Value:* 3 to 5 dry; 2 or 3 moist

*Chroma:* 2 or 3

*Texture:* fine sandy loam, loam

*Clay content:* 10 to 26 percent

*Carbonate clay content:* 0 to 2 percent

*Sand content:* 20 to 60 percent

*Silt content:* 20 to 50 percent

*Rock fragment content:* 0 to 15 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

*Calcium carbonate equivalent:* 0 to 2 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 1.0 to 3.0 percent

C horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 2 or 3 moist
*Chroma:* 2 or 3
*Texture:* very gravelly sandy loam, gravelly sandy loam, sandy loam
*Clay content:* 12 to 19 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 40 to 70 percent
*Silt content:* 28 to 50 percent
*Rock fragment content:* 0 to 35 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 2 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 0.5 to 1.5 percent

## Stunner Series

*Map unit(s):* StB, StC
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)
*Landform:* outwash fan
*Parent material:* outwash derived from granite, gneiss, and mica schist
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Slope:* 1 to 6 percent
*Climatic data:*
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Fine-loamy, mixed, superactive, frigid Ustic Calciargids

**Typical Pedon**

*Map unit in which located:* Stunner loam, 1 to 3 percent slopes
*Location in survey area:* Stunner loam; in an area of Stunner loam, 1 to 3 percent slopes; in shrub cover; Sanchez Reservoir USGS topographic quadrangle, NAD83; 37 degrees 5 minutes 7.92 seconds north latitude and 105 degrees 23 minutes 14.29 seconds west longitude; UTM 465,578 meters E, 4,104,431 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 10 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

A—0 to 4 inches; brown (7.5YR 5/3) loam, dark brown (7.5YR 3/3) moist; 18 percent clay; weak fine granular structure; friable, slightly hard, slightly sticky, slightly plastic; common fine, medium and coarse roots throughout; common fine and very fine dendritic tubular pores; 5 percent gravel; noneffervescent; slightly alkaline (pH 7.8); clear smooth boundary.
Bt—4 to 11 inches; brown (7.5YR 5/3) clay loam, brown (7.5YR 4/3) moist; 30 percent clay; moderate fine subangular blocky structure; friable, hard, moderately sticky, moderately plastic; common very fine, fine and coarse roots throughout; common very fine, fine, and medium dendritic tubular pores; common discontinuous

distinct clay films on all faces of peds; 5 percent gravel; noneffervescent; slightly alkaline (pH 7.8); clear wavy boundary.

Btk—11 to 20 inches; light brown (7.5YR 6/4) clay loam, brown (7.5YR 5/4) moist; 28 percent clay; moderate medium subangular blocky structure and moderate medium prismatic structure; friable, hard, moderately sticky, moderately plastic; common very fine, fine and coarse roots throughout; common very fine vesicular pores and common fine dendritic tubular pores; common distinct clay films on all faces of peds; many irregular carbonate masses around rock fragments and common threadlike carbonate masses in matrix; 10 percent gravel; strongly effervescent (8 percent calcium carbonate equivalent); moderately alkaline (pH 7.9); gradual wavy boundary.

Bk1—20 to 25 inches; pink (7.5YR 7/3) loam, light brown (7.5YR 6/4) moist; 25 percent clay; weak fine subangular blocky structure, and weak medium subangular blocky structure; friable, hard, slightly sticky, slightly plastic; common very fine vesicular pores and common fine dendritic tubular pores; many fine threadlike carbonate masses in matrix and common medium irregular carbonate masses around rock fragments; 10 percent gravel; violently effervescent (45 percent calcium carbonate equivalent); moderately alkaline (pH 7.9); gradual wavy boundary.

Bk2—25 to 38 inches; light brown (7.5YR 6/3) loam, brown (7.5YR 5/3) moist; 25 percent clay; weak medium subangular blocky structure, and weak fine subangular blocky structure; friable, hard, slightly sticky, slightly plastic; common very fine vesicular pores and common fine dendritic tubular pores; many fine threadlike carbonate masses in matrix and many medium irregular carbonate masses around rock fragments; 10 percent gravel; violently effervescent (15 percent calcium carbonate equivalent); moderately alkaline (pH 7.9); gradual wavy boundary.

Bk3—38 to 47 inches; light brown (7.5YR 6/4) loam, brown (7.5YR 4/4), moist; 24 percent clay; weak fine subangular blocky structure; friable, hard, slightly sticky, slightly plastic; common very fine and fine roots throughout; common very fine and fine vesicular pores; common fine threadlike carbonate masses in matrix and common medium irregular carbonate masses around rock fragments; 10 percent gravel; strongly effervescent (6 percent calcium carbonate equivalent); moderately alkaline (pH 7.9); gradual wavy boundary.

Bk4—47 to 77 inches; light brown (7.5YR 6/4) sandy clay loam, brown (7.5YR 4/4) moist; 22 percent clay; friable, slightly hard, slightly sticky, slightly plastic; common very fine roots throughout; common very fine vesicular pores; common fine threadlike carbonate masses in matrix; 15 percent gravel; slightly effervescent (5 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); gradual wavy boundary.

2Bk—77 to 80 inches; light brown (7.5YR 6/4) very gravelly sand, brown (7.5YR 4/4) moist; 5 percent clay; loose, nonsticky, nonplastic; common carbonate masses on bottom of rock fragments; 35 percent gravel; very slightly effervescent (5 percent calcium carbonate equivalent); moderately alkaline (pH 8.0).

## Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* The soil control section is affected by peak precipitation in late summer and early fall. The soil is driest from November to March. The soil has the potential to be moist from April to October.

*Mean annual soil temperature:* 41 to 46 degrees F (5.0 to 7.8 degrees C)

*Mean summer soil temperature:* 63 to 66 degrees F (17.2 to 18.9 degrees C)

*Depth to diagnostic features:* 3 to 10 inches (8 to 25 centimeters) to the argillic horizon; 8 to 18 inches (20 to 46 centimeters) to the calcic horizon; 60 to 80 inches (152 to 203 centimeters) to lithologic discontinuity
*Thickness of diagnostic feature:* The argillic horizon is 8 to 28 inches (20 to 71 centimeters); the calcic horizon is 33 to 70 inches (84 to 178 centimeters)
*Linear extensibility:* weighted average RV is 2.8 percent
*Surface fragments:* 0 to 15 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

*Particle-size control section (weighted average):*
*Clay content:* 21 to 35 percent
*Sand content:* 21 to 42 percent
*Rock fragment content:* 0 to 15 percent subrounded indurated gravel

A horizon(s)
*Hue:* 7.5YR
*Value:* 4 to 6 dry; 3 or 4 moist
*Chroma:* 2 or 3
*Texture:* loam
*Clay content:* 10 to 26 percent
*Carbonate clay content:* 0 to 3 percent
*Sand content:* 30 to 50 percent
*Silt content:* 30 to 48 percent
*Rock fragment content:* 0 to 15 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.4 to 7.8
*Organic matter content:* 0.5 to 1.0 percent

Bt horizon(s)
*Hue:* 7.5YR
*Value:* 4 to 6 dry; 3 or 4 moist
*Chroma:* 2 or 3
*Texture:* clay loam, loam
*Clay content:* 21 to 35 percent
*Carbonate clay content:* 0 to 3 percent
*Sand content:* 20 to 40 percent
*Silt content:* 25 to 48 percent
*Rock fragment content:* 0 to 15 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.4 to 7.8
*Organic matter content:* 0.2 to 1.0 percent

Btk horizon(s)
*Hue:* 7.5YR
*Value:* 5 or 6 dry; 3 to 5 moist
*Chroma:* 3 or 4
*Texture:* clay loam, loam
*Clay content:* 21 to 35 percent
*Carbonate clay content:* 2 to 10 percent
*Sand content:* 20 to 40 percent
*Silt content:* 25 to 48 percent

*Rock fragment content:* 0 to 15 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 5 to 15 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.9 to 8.4
*Organic matter content:* 0.0 to 0.5 percent

Bk horizon(s)
*Hue:* 7.5YR
*Value:* 6 to 7 dry; 4 to 6 moist
*Chroma:* 3 to 4
*Texture:* loam, sandy clay loam
*Clay content:* 18 to 35 percent
*Carbonate clay content:* 2 to 15 percent
*Sand content:* 20 to 75 percent
*Silt content:* 0 to 48 percent
*Rock fragment content:* 0 to 15 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 15 to 50 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.9 to 8.4
*Organic matter content:* 0.0 to 0.5 percent

2Bk horizon(s)
*Hue:* 7.5YR
*Value:* 6 to 7 dry; 4 to 6 moist
*Chroma:* 3 to 4
*Texture:* very gravelly sand, very gravelly loamy sand
*Clay content:* 0 to 12 percent
*Carbonate clay content:* 0 to 3 percent
*Sand content:* 85 to 100 percent
*Silt content:* 0 to 15 percent
*Rock fragment content:* 35 to 60 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.9 to 8.4
*Organic matter content:* 0.0 to 0.5 percent

## Tolvar Series

*Map unit(s):* SzF, ToF, TlF, and TlD
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* mountain slopes
*Position on landform:* mountainflank, mountaintop
*Parent material:* slope alluvium over colluvium derived from granite, gneiss, and mica schist
*Elevation:* 8,500 to 12,000 feet (2,591 to 3,658 meters)
*Slope:* 3 to 65 percent
*Climatic data:*
*Mean annual precipitation:* 16 to 25 inches (406 to 635 millimeters)
*Mean annual air temperature:* 33 to 41 degrees F. (0.6 to 5.0 degrees C.)
*Frost-free period:* 40 to 70 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive Ustollic Glossocryalfs

**Typical Pedon**

*Map unit in which located:* Tolvar gravelly sandy loam, 10 to 65 percent slopes
*Location in survey area:* Tolvar; in an area of Tolvar gravelly sandy loam, 10 to 65 percent slopes; in forest land; Ojito Peak USGS topographic quadrangle, NAD83; 37 degrees 17 minutes 32.08 seconds north latitude and 105 degrees 17 minutes 22.46 seconds west longitude; UTM 474,334 meters E, 4,127,332 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* 25 percent subrounded indurated gravel and 2 percent subrounded indurated cobbles derived from granite, gneiss, and mica schist

Oe—0 to 2 inches; moderately decomposed plant material; slightly acid (pH 6.4).
A—2 to 8 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (7.5YR 3/3) moist; 9 percent clay; weak fine granular structure; slightly hard, friable, nonsticky, nonplastic; many very fine, fine, medium and coarse roots throughout; 25 percent gravel and 5 percent cobbles; noneffervescent; neutral (pH 6.6); clear smooth boundary.
E—8 to 16 inches; light brown (7.5YR 6/3) gravelly sandy loam, brown (7.5YR 4/3) moist; 16 percent clay; weak fine subangular blocky structure; slightly hard, friable, nonsticky, nonplastic; common very fine, fine, medium and coarse roots throughout; 25 percent gravel and 5 percent cobbles; noneffervescent; slightly acid (pH 6.4); clear wavy boundary.
E/Bt—16 to 22 inches; 70 percent light brown (7.5YR 6/3) very gravelly sandy loam (7.5YR 4/3) moist and 30 percent brown (7.5YR 5/4) very gravelly sandy clay loam, brown (7.5YR 4/4) moist; weak to moderate fine subangular blocky structure; slightly hard, friable, nonsticky, nonplastic and friable, moderately sticky, nonplastic; common very fine, fine, medium and coarse roots throughout; 30 percent gravel and 10 percent cobbles; noneffervescent; slightly acid (pH 6.4); gradual irregular boundary.
Bt—22 to 39 inches; brown (7.5YR 5/4) extremely gravelly sandy clay loam, brown (7.5YR 4/4) moist; 26 percent clay; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine, fine, medium and coarse roots throughout; many percent distinct clay films on all faces of peds; 50 percent gravel and 10 percent cobbles; noneffervescent; slightly acid (pH 6.4); gradual wavy boundary.
C—39 to 80 inches; yellowish brown (10YR 5/4) very gravelly sandy loam, brown (7.5YR 4/3) moist; 19 percent clay; massive; slightly hard, friable, nonsticky, nonplastic; few fine, medium and coarse roots throughout; 40 percent gravel and 10 percent cobbles; noneffervescent; neutral (pH 6.8).

**Range in Characteristics**

*Soil moisture:*
*Soil moisture regime subclass:* ustic
*Soil moisture regime class:* udic
*Seasonal pattern:* The soil moisture control section is affected by snowmelt in early spring and peak precipitation occurring in the form of thunderstorms from June to September.
*Mean annual soil temperature:* 34 to 44 degrees F (1.1 to 6.7 degrees C)
*Mean summer soil temperature:* 42 to 48 degrees F (5.6 to 8.9 degrees C)
*Depth to diagnostic feature(s):* 0 inches (0 centimeters) to cryoturbation; 0 to 2 inches (0 to 5 centimeters) to the ochric epipedon; 4 to 10 inches (10 to 25 centimeters) to the albic horizon; 14 to 38 inches (36 to 97 centimeters) to the glossic horizon; 14 to 38 inches (36 to 97 centimeters) to the argillic horizon

*Thickness of diagnostic feature:* The ochric epipedon is 2 to 6 inches (5 to 15 centimeters); the albic horizon is 6 to 10 inches (15 to 25 centimeters); the glossic horizon is 6 to 11 inches (15 to 28 centimeters); the argillic horizon is 23 to 45 inches (58 to 114 centimeters)
*Linear extensibility:* weighted average RV is 1.4 percent
*Surface fragments:* 10 to 40 percent subrounded indurated gravel, 0 to 15 percent cobbles, and 0 to 15 percent stones derived from granite, gneiss, and mica schist

*Particle-size control section (weighted average):*
*Clay content:* 18 to 27 percent
*Sand content:* 40 to 70 percent
*Rock fragment content:* 35 to 75 percent

Oe horizon(s)
*Texture:* moderately decomposed plant material
*Reaction:* pH 6.1 to 6.5
*Organic matter content:* 75.0 to 95.0 percent

A horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 2 or 3 moist
*Chroma:* 2 or 3
*Texture:* gravelly sandy loam
*Clay content:* 8 to 15 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 52 to 75 percent
*Silt content:* 15 to 35 percent
*Rock fragment content:* 15 to 35 percent total, consisting of 15 to 30 percent indurated gravel and 0 to 5 percent indurated cobbles derived from granite, gneiss, and mica schist
*Reaction:* pH 6.1 to 7.3
*Organic matter content:* 1.0 to 2.0 percent

E horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 2 or 3
*Texture:* gravelly sandy loam, very gravelly sandy loam
*Clay content:* 12 to 18 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 52 to 70 percent
*Silt content:* 15 to 35 percent
*Rock fragment content:* 15 to 60 percent total, consisting of 15 to 50 percent indurated gravel and 0 to 10 percent indurated cobbles derived from granite, gneiss, and mica schist
*Reaction:* pH 6.1 to 6.5
*Organic matter content:* 0.8 to 1.5 percent

E/Bt horizon(s)
*Hue:* 5YR or 7.5YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 2 to 4
*Texture:* very gravelly sandy loam, very gravelly sandy clay loam
*Clay content:* 12 to 35 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 40 to 70 percent
*Silt content:* 15 to 40 percent

*Rock fragment content:* 35 to 60 percent total, consisting of 25 to 45 percent indurated gravel and 10 to 15 percent indurated cobbles derived from granite, gneiss, and mica schist
*Reaction:* pH 6.1 to 6.5
*Organic matter content:* 0.2 to 1.5 percent

Bt horizon(s)
*Hue:* 5YR or 7.5YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* extremely gravelly sandy clay loam, very gravelly sandy clay loam, very gravelly clay loam
*Clay content:* 20 to 35 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 40 to 70 percent
*Silt content:* 15 to 40 percent
*Rock fragment content:* 35 to 75 percent total, consisting of 25 to 55 percent indurated gravel and 10 to 20 percent indurated cobbles derived from granite, gneiss, and mica schist
*Reaction:* pH 6.1 to 6.5
*Organic matter content:* 0.0 to 0.5 percent

C horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 to 5
*Texture:* very gravelly sandy loam, extremely gravelly sandy loam
*Clay content:* 12 to 19 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 52 to 75 percent
*Silt content:* 12 to 30 percent
*Rock fragment content:* 35 to 80 percent total, consisting of 25 to 60 percent indurated gravel and 10 to 20 percent indurated cobbles derived from granite, gneiss, and mica schist
*Reaction:* pH 6.1 to 7.3
*Organic matter content:* 0.0 to 0.5 percent

## Travelers Series

*Map unit(s):* TvF, TvD
*Depth class:* shallow
*Drainage class:* well drained
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)
*Landform:* scarp on mesa
*Parent material:* residuum weathered from basalt, andesite and/or rhyolite and/or loamy colluvium derived from basalt, andesite and/or rhyolite over residuum weathered from basalt, andesite and/or rhyolite
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Slope:* 1 to 50 percent
*Climatic data:*
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive, frigid Lithic Ustic Haplocalcids

### Typical Pedon

*Map unit in which located:* Travelers-Rock outcrop complex, 1 to 9 percent slopes
*Location in survey area:* Travelers gravelly sandy loam; Blanca SE USGS topographic quadrangle, NAD83; 37 degrees 20 minutes 17.40 seconds north latitude and 105 degrees 31 minutes 39.68 seconds west longitude; UTM 453,257 meters E, 4,132,518 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 60 percent gravel and 10 percent cobbles derived from basalt

A—0 to 3 inches; brown (7.5YR 5/3) gravelly sandy loam, dark brown (7.5YR 3/3) moist; 8 percent clay; weak fine granular structure; very friable, soft, nonsticky, nonplastic; common very fine and medium roots throughout; common very fine irregular pores; 20 percent gravel and 5 percent cobbles; strongly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
Bk1—3 to 7 inches; brown (7.5YR 5/3) very cobbly sandy loam, brown (7.5YR 4/3) moist; 10 percent clay; weak fine subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; common very fine and medium roots throughout; common very fine dendritic tubular pores; common irregular carbonate masses around rock fragments; 25 percent gravel and 15 percent cobbles; strongly effervescent (15 percent calcium carbonate equivalent); slightly alkaline (pH 7.6); clear wavy boundary.
Bk2—7 to 13 inches; light brown (7.5YR 6/3) very cobbly sandy loam, brown (7.5YR 5/3) moist; 10 percent clay; weak fine subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; common very fine roots throughout; common very fine dendritic tubular pores; common irregular carbonate masses around rock fragments; 25 percent gravel and 20 percent cobbles; strongly effervescent (15 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); abrupt irregular boundary.
R—13 inches; basalt bedrock.

### Range in Characteristics

*Soil moisture:*
*Soil moisture regime subclass:* ustic
*Soil moisture regime class:* aridic (torric)
*Seasonal pattern:* The soil moisture control section is affected by peak precipitation in late summer and early fall. The soil is driest from November to March. The soil has the potential to be moist from April to October.
*Mean annual soil temperature:* 41 to 46 degrees F (5.0 to 7.8 degrees C)
*Mean summer soil temperature:* 63 to 66 degrees F (17.2 to 18.9 degrees C)
*Depth to restrictive feature:* 10 to 20 inches (25 to 51 centimeters) to lithic bedrock
*Depth to diagnostic feature(s):* 3 to 14 inches (8 to 36 centimeters) to the calcic horizon; 10 to 20 inches (25 to 51 centimeters) to lithic contact
*Thickness of diagnostic feature:* The calcic horizon is 8 to 18 inches (25 to 46 centimeters)
*Linear extensibility:* weighted average RV is 0.2 percent
*Surface fragments:* 15 to 75 percent subangular indurated gravel and 0 to 15 percent subangular indurated cobbles derived from basalt

*Particle-size control section (weighted average):*
*Clay content:* 6 to 18 percent
*Sand content:* 40 to 68 percent
*Rock fragment content:* 35 to 85 percent

A horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 5 to 7 dry, 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* gravelly sandy loam
*Clay content:* 6 to 18 percent
*Carbonate clay content:* 1 to 3 percent
*Sand content:* 45 to 75 percent
*Silt content:* 20 to 50 percent
*Rock fragment content:* 15 to 35 percent total, consisting of 10 to 20 percent indurated gravel, 5 to 10 percent indurated cobbles, and 0 to 5 percent indurated stones derived from basalt
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.4 to 7.8
*Organic matter content:* 0.5 to 1.5 percent

Bk horizon(s)
*Hue:* 7.5YR to 10YR
*Value:* 5 to 7 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* very cobbly sandy loam, very cobbly loam, extremely stony sandy loam
*Clay content:* 6 to 18 percent
*Carbonate clay content:* 3 to 12 percent
*Sand content:* 45 to 75 percent
*Silt content:* 15 to 50 percent
*Rock fragment content:* 35 to 85 percent total, consisting of 20 to 30 percent indurated gravel, 15 to 30 percent indurated cobbles, and 0 to 25 percent indurated stones derived from basalt
*Calcium carbonate equivalent:* 5 to 30 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.0 to 0.8 percent

R horizon(s): basalt bedrock.

## Trinchera Series

*Map unit(s):* RrA, RrB, RrD
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* outwash plains, outwash fans
*Parent material:* outwash derived from granite, gneiss, and mica schist
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Slope:* 0 to 9 percent
*Climatic data:*
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Fine-loamy, mixed, superactive, frigid Ustic Calciargids

**Typical Pedon**

*Map unit in which located:* Trinchera fine sandy loam, 0 to 1 percent slopes

*Location in survey area:* Trinchera fine sandy loam; Garcia USGS topographic quadrangle, NAD83; 37 degrees 3 minutes 18.99 seconds north latitude and 105 degrees 32 minutes 26.82 seconds west longitude; UTM 451,918 meters E, 4,101,141 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 5 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

A—0 to 4 inches; brown (7.5YR 4/3) fine sandy loam, dark brown (7.5YR 3/3) moist; 10 percent clay; weak fine granular structure; very friable, soft, nonsticky, nonplastic; common very fine and fine roots throughout; common very fine irregular pores; 5 percent gravel; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.
Bt—4 to 15 inches; brown (7.5YR 5/3) loam, brown (7.5YR 4/4) moist; 21 percent clay; moderate fine subangular blocky structure, and moderate medium subangular blocky structure; friable, slightly hard, moderately sticky, moderately plastic; common very fine and fine roots throughout; common very fine dendritic tubular pores; common discontinuous faint clay films and common discontinuous faint clay bridges; 5 percent gravel; noneffervescent; slightly alkaline (pH 7.4); clear wavy boundary.
Btk—15 to 28 inches; pink (7.5YR 7/3) loam, brown (7.5YR 5/3) moist; 18 percent clay; moderate medium subangular blocky structure, and moderate fine subangular blocky structure; friable, hard, moderately sticky, moderately plastic; common very fine roots throughout; common very fine dendritic tubular pores; common discontinuous faint clay bridges and common discontinuous faint clay films; common carbonate masses around rock fragments and many carbonate masses in matrix; 5 percent gravel; strongly effervescent (27 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); gradual wavy boundary.
Bk1—28 to 40 inches; pink (7.5YR 8/3) loam, light brown (7.5YR 6/3) moist; 15 percent clay; moderate medium subangular blocky structure, and moderate fine subangular blocky structure; friable, hard, moderately sticky, moderately plastic; common very fine roots throughout; common very fine dendritic tubular pores; common carbonate masses around rock fragments and many carbonate masses in matrix; 5 percent gravel; violently effervescent (42 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear wavy boundary.
Bk2—40 to 56 inches; pink (7.5YR 7/3) loam, brown (7.5YR 5/3) moist; 15 percent clay; moderate medium subangular blocky structure, and moderate fine subangular blocky structure; friable, hard, moderately sticky, moderately plastic; common very fine roots throughout; common very fine dendritic tubular pores; common carbonate masses around rock fragments and many carbonate masses in matrix; 5 percent gravel; strongly effervescent (16 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); gradual wavy boundary.
Bk3—56 to 70 inches; light brown (7.5YR 6/3) loam, brown (7.5YR 4/3) moist; 13 percent clay; weak medium subangular blocky structure, and weak fine subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; common very fine dendritic tubular pores; common carbonate masses around rock fragments and many carbonate masses in cracks; 5 percent gravel; strongly effervescent (14 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); gradual wavy boundary.
Bk4—70 to 80 inches; light brown (7.5YR 6/4) sandy loam, brown (7.5YR 5/4) moist; 12 percent clay; massive; friable, slightly hard, slightly sticky, slightly plastic; common very fine irregular pores; common carbonate masses around rock fragments and many carbonate masses in matrix; 5 percent gravel; strongly effervescent (7 percent calcium carbonate equivalent); moderately alkaline (pH 8.0).

**Range in Characteristics**

*Soil moisture:*
*Soil moisture regime subclass:* Ustic
*Soil moisture regime class:* aridic (torric)
*Seasonal pattern:* The soil moisture control section is affected by peak precipitation in late summer and early fall. The soil is driest from November to March. This soil can be moist from April to October.
*Mean annual soil temperature:* 41 to 46 degrees F (5.0 to 7.8 degrees C)
*Mean summer soil temperature:* 63 to 66 degrees F (17.2 to 18.9 degrees C)
*Depth to diagnostic feature(s):* 3 to 7 inches (8 to 18 centimeters) to the argillic horizon; 12 to 25 inches (30 to 64 centimeters) to the calcic horizon
*Thickness of diagnostic feature:* The argillic horizon is 5 to 25 inches (13 to 64 centimeters); the calcic horizon is 20 to 65 inches (51 to 165 centimeters)
*Surface fragments:* 0 to 15 percent subrounded indurated gravel derived from granite, gneiss, and mica schist
*Particle-size control section (weighted average):*
*Clay content:* 15 to 26 percent
*Sand content:* 35 to 60 percent
*Rock fragment content:* 0 to 15 percent

A horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 2 or 3
*Texture:* fine sandy loam
*Clay content:* 10 to 18 percent
*Sand content:* 52 to 82 percent
*Silt content:* 20 to 40 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 2 percent
*Reaction:* pH 6.6 to 7.8

Bt horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 3 or 4
*Texture:* sandy clay loam, loam
*Clay content:* 18 to 26 percent
*Sand content:* 35 to 60 percent
*Silt content:* 20 to 40 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Reaction:* pH 6.6 to 7.8

Btk horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 6 to 8 dry; 5 to 7 moist
*Chroma:* 3 or 4
*Texture:* loam, sandy clay loam
*Clay content:* 15 to 26 percent
*Sand content:* 35 to 55 percent
*Silt content:* 20 to 40 percent

*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 15 to 35 percent
*Reaction:* pH 7.4 to 8.4

Bk horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 6 to 8 dry; 4 to 6 moist
*Chroma:* 3 or 4
*Texture:* loam, sandy loam
*Clay content:* 8 to 18 percent
*Sand content:* 40 to 70 percent
*Silt content:* 20 to 46 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 3 to 45 percent
*Reaction:* pH 7.4 to 8.4

## Uracca Series

*Map unit(s):* UrF, UmF, MuE, CuF, MuC
*Depth class:* very deep
*Drainage class:* well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* mountain slopes, fan remnants
*Parent material:* colluvium over residuum derived from granite, gneiss, and mica schist
*Elevation:* 8,000 to 10,500 feet (2,438 to 3,200 meters)
*Slope:* 3 to 65 percent
*Climatic data:*
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)
*Mean annual air temperature:* 37 to 41 degrees F. (3.0 to 5.0 degrees C.)
*Frost-free period:* 75 to 90 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive, frigid Calcidic Argiustolls

**Typical Pedon**

*Map unit in which located:* Uracca-Culebra complex, 5 to 50 percent slopes
*Location in survey area:* Uracca very cobbly sandy loam; in an area of Uracca-Culebra complex, 5 to 50 percent slopes; in forest land; Trinchera Ranch USGS topographic quadrangle, NAD83; 37 degrees 27 minutes 11.41 seconds north latitude and 105 degrees 18 minutes 0.67 seconds west longitude; UTM 473,450 meters E, 4,145,188 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 50 percent subrounded indurated gravel and 20 percent subrounded indurated cobbles derived from granite, gneiss, and mica schist

A—0 to 4 inches; dark brown (7.5YR 3/2), very cobbly sandy loam, very dark brown (7.5YR 2.5/2) moist; 16 percent clay; weak fine granular structure; friable, soft, nonsticky, nonplastic; many very fine roots, fine roots, medium roots and coarse roots throughout; 20 percent gravel, 15 percent cobbles; noneffervescent; neutral (pH 7.2); clear smooth boundary.
Bt—4 to 11 inches; brown (7.5YR 4/3), very cobbly sandy clay loam, dark brown (7.5YR 3/3) moist; 28 percent clay; moderate fine subangular blocky structure; friable, slightly hard, moderately sticky, nonplastic; many very fine roots, fine

roots, medium roots and coarse roots throughout; many continuous distinct clay films on all faces of peds; 25 percent gravel, 20 percent cobbles; very slightly effervescent; neutral (pH 7.0); gradual wavy boundary.

Btk—11 to 18 inches; brown (7.5YR 5/3), very cobbly sandy clay loam, brown (7.5YR 4/3) moist; 24 percent clay; weak fine subangular blocky structure; friable, slightly hard, slightly sticky, nonplastic; common very fine roots, fine roots, medium roots and coarse roots throughout; many continuous distinct clay films on all faces of peds; many carbonate concretions on bottom of rock fragments; 30 percent gravel and 25 percent cobbles; strongly effervescent (10 percent calcium carbonate equivalent); neutral (pH 7.2); gradual wavy boundary.

Bk1—18 to 24 inches; brown (7.5YR 5/4), extremely cobbly sandy loam, brown (7.5YR 4/4) moist; 18 percent clay; weak fine subangular blocky structure; friable, slightly hard, nonsticky, nonplastic; few very fine roots, fine roots, medium roots, and coarse roots throughout; many carbonate masses throughout and many carbonate concretions on bottom of rock fragments; 35 percent gravel and 25 percent cobbles; strongly effervescent (10 percent calcium carbonate equivalent); slightly alkaline (pH 7.6); gradual wavy boundary.

Bk2—24 to 52 inches; light brown (7.5YR 6/3), extremely cobbly sandy loam, brown (7.5YR 5/3) moist; 16 percent clay; weak fine subangular blocky structure; friable, slightly hard, nonsticky, nonplastic; few very fine roots, fine roots, medium roots and coarse roots throughout; many carbonate masses throughout and many carbonate concretions on bottom of rock fragments; 40 percent gravel and 30 percent cobbles; strongly effervescent (10 percent calcium carbonate equivalent); slightly alkaline (pH 7.8); gradual wavy boundary.

Bk3—52 to 80 inches; light brown (7.5YR 6/3), extremely cobbly sandy loam, brown (7.5YR 5/3) moist; 14 percent clay; weak fine subangular blocky structure; very friable, soft, nonsticky, nonplastic; few very fine roots, fine roots, medium roots and coarse roots throughout; many carbonate masses throughout and many carbonate concretions on bottom of rock fragments; 40 percent gravel and 30 percent cobbles; strongly effervescent (10 percent calcium carbonate equivalent); slightly alkaline (pH 7.8).

## Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* The soil moisture control section is affected by snowmelt in early spring and peak precipitation occurring in the form of thunderstorms from June to September.

*Mean annual soil temperature:* 41 to 46 degrees F (5 to 7.8 degrees C)

*Mean summer soil temperature:* 63 to 66 degrees F (17.2 to 18.9 degrees C)

*Depth to diagnostic feature(s):* 2 to 6 inches (5 to 15 centimeters) to the argillic horizon; 11 to 38 inches (28 to 97 centimeters) to the calcic horizon

*Thickness of diagnostic feature:* The mollic epipedon is 8 to 12 inches (20 to 30 centimeters); the argillic horizon is 7 to 16 inches (18 to 41 centimeters); the calcic horizon is 53 to 71 inches (135 to 180 centimeters)

*Linear extensibility:* weighted average RV is 0.8 percent

*Surface fragments:* 15 to 60 percent subrounded indurated gravel and 0 to 25 percent subrounded indurated cobbles derived from granite, gneiss, and mica schist

*Particle-size control section (weighted average):*

*Clay content:* 18 to 35 percent

*Sand content:* 20 to 75 percent

*Rock fragment content:* 35 to 85 percent

A horizon(s)

*Hue:* 7.5YR or 10YR
*Value:* 3 to 5 dry; 2 or 3 moist
*Chroma:* 2 or 3
*Texture:* very cobbly sandy loam
*Clay content:* 14 to 20 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 52 to 75 percent
*Silt content:* 10 to 35 percent
*Rock fragment content:* 15 to 60 percent total, consisting of 15 to 35 percent indurated gravel and 0 to 25 percent indurated cobbles derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 0 mmhos/cm
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 1.0 to 2.0 percent

Bt horizon(s)

*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 3 or 4 moist
*Chroma:* 3 or 4
*Texture:* very cobbly sandy clay loam
*Clay content:* 20 to 35 percent
*Carbonate clay content:* 0 to 2 percent
*Sand content:* 52 to 75 percent
*Silt content:* 5 to 30 percent
*Rock fragment content:* 35 to 60 percent total, consisting of 25 to 45 percent indurated gravel, 10 to 35 percent indurated cobbles, and 0 to 5 percent indurated stones derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 1 to 5 percent
*Electrical conductivity:* 0 to 0 mmhos/cm
*Reaction:* pH 6.6 to 7.8
*Organic matter content:* 1.0 to 1.5 percent

Btk horizon(s)

*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* very cobbly sandy clay loam
*Clay content:* 20 to 35 percent
*Carbonate clay content:* 3 to 6 percent
*Sand content:* 52 to 75 percent
*Silt content:* 5 to 30 percent
*Rock fragment content:* 35 to 85 percent total, consisting of 25 to 45 percent indurated gravel, 10 to 35 percent indurated cobbles, and 0 to 5 percent indurated stones derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 5 to 14 percent
*Electrical conductivity:* 0 to 0 mmhos/cm
*Reaction:* pH 6.6 to 8.4
*Organic matter content:* 0.5 to 1.0 percent

Bk horizon(s)

*Hue:* 7.5YR or 10YR
*Value:* 5 or 6 dry; 4 or 5 moist
*Chroma:* 3 or 4
*Texture:* extremely cobbly sandy loam

*Clay content:* 5 to 18 percent
*Carbonate clay content:* 3 to 10 percent
*Sand content:* 60 to 85 percent
*Silt content:* 5 to 30 percent
*Rock fragment content:* 35 to 85 percent total, consisting of 20 to 50 percent indurated gravel, 15 to 30 percent indurated cobbles, and 0 to 5 percent indurated stones derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 5 to 14 percent
*Electrical conductivity:* 0 to 0 mmhos/cm
*Reaction:* pH 7.4 to 9.0
*Organic matter content:* 0.0 to 1.0 percent

## Vastine Series

*Map unit(s):* VgA
*Depth class:* very deep
*Drainage class:* poorly drained
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)
*Landform:* flood plains
*Parent material:* fine loamy over sandy and gravelly alluvium derived from granite, gneiss, and mica schist
*Elevation:* 7,500 to 8,000 feet (2,286 to 2,438 meters)
*Slope:* 0 to 1 percent
*Climatic data:*
*Mean annual precipitation:* 6 to 8 inches (152 to 203 millimeters)
*Mean annual air temperature:* 41 to 46 degrees F. (5.0 to 8.0 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Typic Endoaquolls

**Typical Pedon**

*Map unit in which located:* Vastine-Gerrard complex, 0 to 1 percent slopes
*Location in survey area:* Vastine loam; Lasauses USGS topographic quadrangle, NAD83; 37 degrees 18 minutes 33.88 seconds north latitude and 105 degrees 44 minutes 3.61 seconds west longitude; UTM 434,927 meters E, 4,129,450 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* None

A—0 to 3 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; 24 percent clay; moderate fine subangular blocky structure; friable, hard, slightly sticky, slightly plastic; many very fine and fine roots throughout; common very fine dendritic tubular pores; fine threadlike gypsum masses; slightly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
Ag—3 to 14 inches; brown (10YR 5/3) loam, very dark grayish brown (10YR 3/2) moist; 22 percent clay; moderate fine subangular blocky structure; friable, hard, slightly sticky, slightly plastic; many very fine and fine roots throughout; common very fine dendritic tubular pores; 25 percent coarse strong brown (7.5YR 5/6), dry, masses of oxidized iron throughout; noneffervescent; moderately alkaline (pH 8.0); clear wavy boundary.
Agb—14 to 21 inches; dark gray (10YR 4/1) clay loam, black (10YR 2/1) moist; 30 percent clay; moderate fine subangular blocky structure; friable, hard, moderately sticky, moderately plastic; common very fine roots throughout; common very fine dendritic tubular pores; 10 percent fine faint strong brown (7.5YR 5/6), dry,

masses of oxidized iron throughout; noneffervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Bg—21 to 27 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; 26 percent clay; moderate medium subangular blocky structure; friable, hard, slightly sticky, moderately plastic; common very fine roots throughout; common very fine dendritic tubular pores; 10 percent fine faint strong brown (7.5YR 5/6), dry, masses of oxidized iron throughout; noneffervescent; moderately alkaline (pH 8.0); clear wavy boundary.

2Cg1—27 to 58 inches; grayish brown (10YR 5/2) sand, dark grayish brown (10YR 4/2) moist; 5 percent clay; single grain; loose, nonsticky, nonplastic; common very fine roots throughout; few very fine irregular pores; 25 percent coarse distinct strong brown (7.5YR 5/6), dry, masses of oxidized iron throughout; noneffervescent; moderately alkaline (pH 8.0); clear wavy boundary.

2Cg2—58 to 80 inches; dark grayish brown (10YR 4/2) sand, very dark grayish brown (10YR 3/2) moist; 5 percent clay; single grain; loose, nonsticky, nonplastic; common very fine irregular pores; 25 percent coarse distinct strong brown (7.5YR 5/6) dry, masses of oxidized iron throughout; 10 percent gravel; noneffervescent; moderately alkaline (pH 8.0); clear wavy boundary.

3Cg—80 to 90 inches; dark grayish brown (10YR 4/2) extremely gravelly sand, very dark grayish brown (10YR 3/2) moist; 5 percent clay; single grain; loose, nonsticky, nonplastic; common very fine irregular pores; 25 percent coarse distinct strong brown (7.5YR 5/6) dry, masses of oxidized iron throughout; 62 percent gravel; noneffervescent; moderately alkaline (pH 8.0).

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* aquic

*Seasonal pattern:* The soil moisture control section is affected by peak precipitation in the late summer and early fall months. The soil is driest from November to March. The soil has the potential to be moist from April to October.

*Mean annual soil temperature:* 41 to 46 degrees F 41 to 46 degrees F (5 to 7.8 degrees C)

*Mean summer soil temperature:* 59 to 63 degrees F (15 to 17.2 degrees C)

*Depth to restrictive feature:* 20 to 40 inches (51 to 102 centimeters) to strongly contrasting textural stratification

*Depth to diagnostic feature(s):* 10 to 20 inches (30 to 203 centimeters to aquic conditions and endosaturation; 20 to 40 inches (50 to 102 centimeters) to lithologic discontinuity

*Thickness of diagnostic feature:* The mollic epipedon is 7 to 27 inches (18 to 61 centimeters)

*Linear extensibility:* weighted average RV is 2.4 percent

*Surface fragments:* 0 to 15 percent subrounded indurated gravel derived from granite, gneiss, and mica schist

*Seasonal high water table:* from April through October

*Depth to top:*10 to 20 inches (25 to 51 centimeters)

*Particle-size control section (weighted average):*

*Clay content:* 20 to 35 percent

*Sand content:* 15 to 35 percent

*Rock fragment content:* 0 to 15 percent

A, Ag horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 3 to 5 dry; 2 or 3 moist
*Chroma:* 1 or 2
*Texture:* loam
*Clay content:* 15 to 26 percent
*Carbonate clay content:* 0 to 6 percent
*Sand content:* 30 to 50 percent
*Silt content:* 30 to 50 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Gypsum content:* 0 to 3 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 1.0 to 4.0 percent

Agb horizon(s) (if present)
*Hue:* 7.5YR or 10YR
*Value:* 3 to 5 dry; 2 or 3 moist
*Chroma:* 1 or 2
*Texture:* clay loam, loam
*Clay content:* 23 to 32 percent
*Carbonate clay content:* 0 to 3 percent
*Sand content:* 30 to 50 percent
*Silt content:* 30 to 46 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Gypsum content:* 0 to 3 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.5 to 1.0 percent

Bg horizon(s)
*Hue:* 7.5YR or 10YR
*Value:*4 or 5 dry; 3 or 4 moist
*Chroma:* 2 to 4
*Texture:* loam, clay loam
*Clay content:* 23 to 32 percent
*Carbonate clay content:* 0 to 3 percent
*Sand content:* 20 to 35 percent
*Silt content:* 37 to 46 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Gypsum content:* 0 to 3 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.0 to 1.0 percent

2Cg horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 3 to 4 moist
*Chroma:* 2 to 3
*Texture:* sand, loamy sand

*Clay content:* 0 to 15 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 70 to 100 percent
*Silt content:* 0 to 30 percent
*Rock fragment content:* 0 to 15 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.0 to 1.0 percent

3Cg horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 or 5 dry; 3 to 4 moist
*Chroma:* 2 to 3
*Texture:* extremely gravelly sand
*Clay content:* 0 to 10 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 85 to 100 percent
*Silt content:* 0 to 15 percent
*Rock fragment content:* 60 to 89 percent indurated gravel derived from granite, gneiss, and mica schist
*Calcium carbonate equivalent:* 0 to 5 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 7.4 to 8.4
*Organic matter content:* 0.0 to 1.0 percent

## Ventero Series

*Map unit(s):* VeA
*Depth class:* very deep
*Drainage class:* very poorly drained
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)
*Landform:* flood plains
*Parent material:* herbaceous organic material over loamy alluvium derived from granite, gneiss, and mica schist
*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)
*Slope:* 0 to 1 percent
*Climatic data:*
*Mean annual precipitation:* 8 to 12 inches (203 to 305 millimeters)
*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)
*Frost-free period:* 85 to 100 days

*Taxonomic class:* Loamy, mixed, euic, frigid Terric Haplohemists

**Typical Pedon**

*Map unit in which located:* Ventero mucky peat, 0 to 1 percent slopes
*Location in survey area:* Ventero peat; Sanchez Reservoir USGS topographic quadrangle, NAD83; 37 degrees 1 minutes 42.04 seconds north latitude and 105 degrees 25 minutes 55.79 seconds west longitude; UTM 461,570 meters E, 4,098,112 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* None

Oi—0 to 8 inches; very dark grayish brown (10YR 3/2) peat, very dark brown (10YR 2/2) moist; 80 percent rubbed fiber and raw herbaceous material; loose, nonsticky, nonplastic; common very fine roots throughout; noneffervescent; neutral (pH 6.6); clear wavy boundary.

Oe—8 to 23 inches; very dark gray (10YR 3/1) mucky peat, very dark brown (10YR 2/2) moist; 65 percent rubbed fiber and raw herbaceous material; loose, nonsticky, nonplastic; common very fine roots throughout; noneffervescent; moderately acid (pH 6.0); clear wavy boundary.

A—23 to 38 inches; very dark gray (10YR 3/1) silty clay loam, black (10YR 2/1) moist; 28 percent clay; weak medium subangular blocky structure; friable, soft, moderately sticky, moderately plastic; common very fine roots throughout; common very fine dendritic tubular pores; noneffervescent; moderately acid (pH 5.8); clear wavy boundary.

Oa—38 to 44 inches; very dark brown (10YR 2/2) muck, very dark brown (10YR 2/2) moist; 15 percent rubbed fiber and raw herbaceous material; loose, nonsticky, nonplastic; common very fine roots throughout; noneffervescent; moderately acid (pH 6.0); clear wavy boundary.

Cg—44 to 60 inches; dark grayish brown (10YR 4/2) very fine sandy loam, very dark grayish brown (10YR 3/2) moist; 16 percent clay; massive; very friable, soft, slightly sticky, slightly plastic; common very fine roots throughout; common very fine dendritic tubular pores; noneffervescent; slightly acid (pH 6.2).

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* The soil moisture control section is affected by peak precipitation in late summer, early fall. The soil is driest from November to March. The soil has the potential to be moist from April to October.

*Mean annual soil temperature:* 41 to 46 degrees F (5 to 7.8 degrees C)

*Mean summer soil temperature:* 63 to 66 degrees F ( 17.2 to 18.9 degrees C)

*Depth to diagnostic feature(s):* 23 to 38 inches (58 to 97 centimeters) to terric feature

*Thickness of diagnostic feature:* The histic epipedon is 20 to 38 inches (51 TO 97 centimeters)

*Linear extensibility:* weighted average RV is 2.2 percent

*Seasonal high water table:* from January through December

*Depth to top:* 0 to 6 inches (0 to 15 centimeters)

*Particle-size control section (weighted average):*

*Clay content:* 20 to 35 percent

*Sand content:* 10 to 20 percent

*Rock fragment content:* none

Oa, Oe, Oi horizon(s)

*Hue:*10YR

*Value:* 3 or 4 dry; 2 or 3 moist

*Chroma:* 1 to 2

*Texture:* peat, muck, mucky peat

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* pH 5.6 to 7.3

*Organic matter content:* 75.0 to 95.0 percent

A horizon(s)

*Hue:* 7.5YR or 10YR

*Value:* 3 to 5 dry; 2 or 3 moist

*Chroma:* 1 or 3

*Texture:* silty clay loam
*Clay content:* 28 to 35 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 10 to 20 percent
*Silt content:* 0 to 70 percent
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 5.6 to 7.3
*Organic matter content:* 1.0 to 2.0 percent

Cg horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 to 8 dry; 3 to 6 moist
*Chroma:* 2 or 3
*Texture:* very fine sandy loam
*Clay content:* 5 to 20 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 50 to 70 percent
*Silt content:* 0 to 50 percent
*Calcium carbonate equivalent:* 0 to 1 percent
*Electrical conductivity:* 0 to 2 mmhos/cm
*Reaction:* pH 6.1 to 7.8
*Organic matter content:* 1.0 to 2.0 percent

## Woodhall Series

*Map unit(s):* LbF
*Depth class:* moderately deep
*Drainage class:* well drained
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)
*Landform:* mountain slopes
*Position on landform:* mountainflank, mountaintop
*Parent material:* slope alluvium over residuum weathered from sandstone
*Elevation:* 8,900 to 11,500 feet (2,713 to 3,505 meters)
*Slope:* 5 to 65 percent
*Climatic data:*
*Mean annual precipitation:* 16 to 25 inches (406 to 635 millimeters)
*Mean annual air temperature:* 33 to 41 degrees F. (0.6 to 5.0 degrees C.)
*Frost-free period:* 40 to 70 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive Ustic Argicryolls

**Typical Pedon**

*Map unit in which located:* Lambe-Woodhall complex, 5 to 65 percent slopes
*Location in survey area:* Woodhall channery silt loam; McCarty Park USGS topographic quadrangle, NAD83; 37 degrees 27 minutes 2.54 seconds north latitude and 105 degrees 9 minutes 49.57 seconds west longitude; NAD83; UTM 485,515 meters E, 4,144,885 meters N, zone 13. (Colors are for dry soil unless otherwise noted.)
*Surface fragments:* about 20 percent subangular indurated gravel and 2 percent subangular indurated cobbles derived from sandstone

A—0 to 4 inches; dark grayish brown (10YR 4/2) channery silt loam, very dark grayish brown (10YR 3/2) moist; 8 percent clay; moderate fine granular structure; loose, nonsticky, nonplastic; many very fine and common fine roots throughout;

10 percent gravel, 15 percent channers; noneffervescent; neutral (pH 6.7); clear smooth boundary.

Bt1—4 to 11 inches; dark grayish brown (10YR 4/2) very channery loam, very dark grayish brown (10YR 3/2) moist; 22 percent clay; moderate medium subangular blocky structure; friable, slightly hard, nonsticky, nonplastic; common very fine roots throughout; common very fine dendritic tubular pores; 50 percent distinct clay bridges between sand grains; 10 percent gravel, 25 percent channers and 10 percent cobbles; noneffervescent; neutral (pH 7.0); abrupt smooth boundary.

Bt2—11 to 23 inches; light brown (7.5YR 6/3) very channery loam, brown (7.5YR 4/3) moist; 21 percent clay; weak fine subangular blocky structure; friable, slightly hard, nonsticky, nonplastic; common very fine roots throughout; many very fine dendritic tubular pores; 20 percent faint clay bridges between sand grains; 10 percent gravel, 25 percent channers and 10 percent cobbles; noneffervescent; neutral (pH 7.0); clear smooth boundary.

C—23 to 32 inches; brown (10YR 5/3) extremely channery fine sandy loam, brown (10YR 4/3) moist; 9 percent clay; massive; friable, slightly hard, nonsticky, nonplastic; common medium roots throughout and few very fine roots throughout; common very fine dendritic tubular pores; 10 percent gravel, 40 percent channers and 15 percent cobbles; noneffervescent; neutral (pH 6.8); abrupt wavy boundary.

R—32 inches; sandstone bedrock.

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* udic

*Seasonal pattern:* The soil moisture control section is affected by snowmelt in early spring and peak precipitation in the form of thunderstorms occurring from June to September.

*Mean annual soil temperature:* 34 to 44 degrees F (1.1 to 6.7 degrees C)

*Mean summer soil temperature:* 42 to 48 degrees F (5.6 to 8.9 degrees C)

*Depth to restrictive feature:* 20 to 40 inches (51 to 102 centimeters) to lithic bedrock

*Depth to diagnostic feature(s):* 4 to 10 inches (10 to 25 centimeters) to the argillic horizon

*Thickness of diagnostic feature:* The mollic epipedon is 4 to 11 inches (10 to 28 centimeters); the argillic horizon is 19 to 23 inches (48 to 58 centimeters)

*Linear extensibility:* weighted average RV is 0.2 percent

*Surface fragments:* 5 to 35 percent subangular indurated gravel and 0 to 10 percent subangular indurated cobbles derived from sandstone

*Particle-size control section (weighted average):*

*Clay content:* 18 to 27 percent

*Sand content:* 30 to 60 percent

*Rock fragment content:* 35 to 60 percent

A horizon(s)

*Hue:* 7.5YR or 10YR

*Value:* 3 or 4 dry; 2 or 3 moist

*Chroma:* 2 or 3

*Texture:* channery silt loam

*Clay content:* 5 to 18 percent

*Carbonate clay content:* 0 to 1 percent

*Sand content:* 35 to 60 percent

*Silt content:* 35 to 60 percent

*Rock fragment content:* 15 to 35 percent total, consisting of 5 to 15 percent indurated gravel and 10 to 20 percent indurated channers derived from sandstone
*Calcium carbonate equivalent:* 0 to 2 percent
*Electrical conductivity:* 0 to 1 mmhos/cm
*Sodium adsorption ratio:* 0 to 0
*Reaction:* pH 6.1 to 7.3
*Organic matter content:* 2.0 to 4.0 percent

Bt horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 to 6 dry; 3 to 5 moist
*Chroma:* 2 or 3
*Texture:* very channery loam, extremely gravelly sandy clay loam, very gravelly sandy clay loam
*Clay content:* 18 to 27 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 30 to 60 percent
*Silt content:* 20 to 65 percent
*Rock fragment content:* 35 to 75 percent total, consisting of 10 to 35 percent indurated gravel, 20 to 30 percent indurated channers derived from sandstone, and 5 to 10 percent indurated cobbles
*Calcium carbonate equivalent:* 0 to 2 percent
*Electrical conductivity:* 0 to 1 mmhos/cm
*Sodium adsorption ratio:* 0 to 0
*Reaction:* pH 6.1 to 7.3
*Organic matter content:* 0.5 to 2.5 percent

C horizon(s)
*Hue:* 7.5YR or 10YR
*Value:* 4 to 6 dry; 3 to 5 moist
*Chroma:* 2 or 3
*Texture:* extremely channery fine sandy loam, very gravelly sandy loam, extremely gravelly sandy loam, very channery fine sandy loam and very cobbly fine sandy loam
*Clay content:* 5 to 18 percent
*Carbonate clay content:* 0 to 1 percent
*Sand content:* 30 to 60 percent
*Silt content:* 30 to 65 percent
*Rock fragment content:* 35 to 75 percent total, consisting of 10 to 20 percent indurated gravel, 15 to 40 percent indurated channers, and 10 to 15 percent indurated cobbles derived from sandstone
*Calcium carbonate equivalent:* 0 to 2 percent
*Electrical conductivity:* 0 to 1 mmhos/cm
*Sodium adsorption ratio:* 0 to 0
*Reaction:* pH 6.1 to 7.3
*Organic matter content:* 0.2 to 0.8 percent

R horizon(s); sandstone bedrock.

# Formation of the Soils

In this section, the soil-forming processes and soil-forming factors are discussed as they relate to soils in the Costilla County Area. The factors of soil formation, or the soil environment, are external in nature. The soil-forming processes, or pedogenic, are internal processes. Soil characteristics are determined by the four soil-forming processes and five soil-forming factors.

## Soil-Forming Processes

The four soil-forming processes of soil formation are: (1) additions, (2) losses, (3) translocations, and (4) transformations. (Buol and others, 1980.)

The principal *addition* is organic matter. Organic matter begins to accumulate as soon as plant life begins to grow on or in the soil surface. This accumulation is primarily in the surface and generally has a net increase in nutrients and cation-exchange capacity.

Most *losses* occur by leaching. Water movement through the soil dissolves certain minerals from upper horizons and transports them to deeper horizons. Materials are also lost from the soil in the form of gasses while others are lost through erosion. Losses through erosion usually occur in the surface layer where most organic materials accumulate.

*Translocation* is the movement from one location to another. Leaching can move soil chemicals, organic material, and silicate clays through the soil profile. Water is the primary agent of translocation. Water moves down through the soil profile, dissolving soil minerals as it goes. The amount and frequency of water will determine the depth to which minerals are moved. The depth at which water movement stops will determine where minerals are deposited. In drier areas of the valley, very little leaching and translocation occurs so calcium carbonate is often at the surface. In areas of increased moisture, calcium carbonate is transported to underlying soil horizons.

*Transformations* are changes that take place in the soil. Microorganisms that live in the soil feed on fresh organic matter and change it into humus. Chemical weathering changes parent material, and some minerals are changed to new minerals or are completely destroyed. Iron, for example, is present in the soil in many forms depending upon the amount of water in the soil.

## Factors of Soil Formation

Soil formation is dependent upon five important factors. These factors are: (1) parent material, (2) climate, (3) relief (topography) or lay of the land, (4) living organisms on or in the soil, and (5) the length of time that the forces of soil formation have acted on the soil material. These factors are interdependent and, under different conditions, some factors are more effective than others. (Buol and others, 1980.)

*Climate* and *vegetation* are active factors of soil formation. They alter soil material and enhance development of genetically related horizons. *Topography*, primarily slope and aspect, modifies the effects of climate and vegetation. *Parent material* affects the

kind of materials that form. *Time* is needed to change the parent material into soil and develop distinct horizons.

### Parent Material

*Parent material* is the unconsolidated material from which soil develops. Initially soil consists of primarily parent material before other soil-forming factors modify the soil. Varying physical and chemical properties of different types of parent material result in the formation of different soils. Texture, color, consistence, permeability and chemical composition are some soil properties that are influenced by parent material. Generally there are three types of parent material: transported, residuum, and lacustrine. There are four major types of transported materials in the Costilla County Area: (1) alluvium, (2) eolian material, (3) colluvium, and (4) till.

*Alluvium* is material deposited by water. Recent alluvium is commonly stratified sediments deposited on flood plains. Soils that formed in recent alluvium have very little horizon development. Textures vary widely from very sandy to clayey depending on the deposition event. Examples of recent alluvial deposits include Costilla, McGinty, Gerrard, Graypoint, and Vastine soils.

*Eolian parent materials* consist of wind-transported sand, silt, and clay. *Eolian deposits* are dominantly sand-sized materials with lesser amounts of silt. Soils that are extremely sandy have no soil development, while soils mixed with some silt and clay has well developed subsoils. An example of eolian deposits is the Hooper soil which has eolian sands over alluvium.

*Colluvium* consist of materials transported by gravity. These soils are dominantly on steep mountain slopes. They have varying amounts of rock fragments mixed with the soil. Rock fragments are derived from a variety of sedimentary, metamorphic, and igneous sources from surrounding parent material. Mountain slopes often consist of deep colluvial deposits over 5 feet deep. Soils derived from colluvium usually have chemical and physical properties similar to the source rock from which they came. For example, colluvium derived from Sangre De Cristo sandstone is red in color and has a high sand content. Colluvium derived from basalt usually has high clay content. Most soils derived from colluvium in Costilla County are found in the mountains. Woodland soils formed in colluvium on mountainsides include Angostura, Leadville, and Howlett. Grassland soils formed in colluvium on mountainsides include Mirror.

*Till* is material deposited by high elevation glaciers. These soils often contain high amounts of rock fragments mixed with soil material. These deposits are found at the upper elevations of the Sangre de Cristo Mountains below timberline on mountain slopes. Fallriver is an example of a soil that formed from till.

*Residuum* is soil that formed in place from parent bedrock. Residuum is extensive and is found throughout the survey area. The nature of residual parent material and the soils that formed depends upon the source rock. Soils that formed from sandstone have high amounts of sand. Soils that formed from basalt have high amounts of clay. Soils that formed from limestone have high amounts of silt and calcium carbonate. The colors of the soil also reflect the colors of the rock.

Many areas have mixtures of alluvium, colluvium, and residuum. Residual soils often have a thin mantle of slope alluvium on the surface. In lesser sloping areas, alluvium was deposited on top of residuum.

### Climate

*Climate* affects the kind of vegetation that grows on soils, the level of biological activity in soils, and the chemical weathering of parent material. Precipitation and temperature are the most important climatic factors, but wind frequency and velocity, humidity, and the amount of cloud cover also impact soil formation.

Precipitation that infiltrates the soil is critical to the rate of weathering. Water is the principal medium in which chemical reactions take place. Water movement downward through the soil carries products of chemical and biological reactions. The total depth of water movement and weathering is called effective precipitation. Temperature directly influences the rates of chemical and biological processes. When temperatures are below 40 degrees F., weathering processes slow down or become nonexistent.

The survey area has two distinct temperature zones and five precipitation zones. The valley is the driest and warmest part of the survey area, typically warm in the summer and cold in the winter. The average annual summer temperature is 62 degrees F. and the average winter temperature is 21 degrees F. There are two precipitation zones in the valley portion of the survey area: the west half of the valley in the survey area averages 6 to 8 inches annual precipitation, while the east half averages 8 to 12 inches. Of this, about 4.69 inches, or 51 percent, usually falls in June through September.

The lower mountain slopes in the survey area have warm summers and cold winters. This zone receives higher amounts of precipitation, averaging 12 to 16 inches annually. Vegetation varies widely depending upon the steepness of slope, the aspect, and the depth to bedrock. Open grassy areas are a combination of short and mid-sized grasses. Steep slopes at lower elevations are dominated by pinyon and juniper trees. Slopes at higher elevations have ponderosa pine, Douglas fir, and white fir where temperatures are somewhat cooler and precipitation nears 16 inches annually. Soils range from shallow to very deep depending upon the steepness of slope, the effective precipitation, and aspect.

The mountains in the survey area typically have cool summers and cold winters. The average annual temperature is less than 40 degrees F. Summers are very short and the frost-free season is less than 70 days. Precipitation ranges from 16 to 25 inches at lower elevations, and from 25 to 35 inches above 10,000 feet. Moisture occurs consistently throughout the year with heavy snow in the fall, winter, and spring months, and rain in the summer months. Soils typically are moist throughout the year. Soils generally are very deep in most areas. Terraces, fans, and drainageways typically have mid-sized to tall grass vegetation with high amounts of organic matter in the soil. Mountain slopes are dominated by conifers, and soil types typically are leached of organic matter due to the high amounts of precipitation and the lower contribution of organic matter from tree species.

**Living Organisms**

*Living organisms* affect soil development by supplying upper layers with organic matter, recycling nutrients, and helping to prevent erosion. Dead plants and animals are decomposed by microorganisms and other fauna. This results in nutrient recycling by plants, the net addition of organic matter to the soil, and darker colors in the surface layer. Soil microorganisms can also influence the development of soil structure. Nitrogen is added to the soil by organic matter decomposition from biological activity and in association of certain plant species.

Living vegetation helps control erosion by stabilizing the soil surface. Plant roots in short grass plant communities in the valley effectively cover the surface, hold the soil in place, and increase water infiltration. The canopy of conifers provides continuous shade, creating a cooler environment and a lower rate of evaporation in the soil.

Coniferous forests are dominant in the mountains where higher rainfall occurs. The acidic litter of conifers causes leaching of silicate clays and other minerals. Conifers also contribute lower amounts of organic matter to the soil surface because roots do not die annually and are much larger in size than grasses. These factors result in the formation of Alfisols, such as Angostura, Leadville, and Howlett soils.

The mountain slopes have a mixture of scattered trees, shrubs, and short to mid-sized grasses at lower elevations. Steep slopes tend to have less grass cover and more trees and shrubs. The result is less organic matter in the surface and less development in the subsoil. Inceptisols such as Culebra are commonly found on mountain slopes. At higher elevations, precipitation is more frequent and subsoils are more developed. Alfisols such as Seitz, Scandard, Tolvar, and Laveta commonly are found in these areas. Vegetation on drainageways, terraces, and gently sloping fans typically are grass species. These soils are high in organic matter. Mollisols such as Comodore, Lambe, Shawa, Uracca, and Morval are common on these landform positions.

**Relief**

*Relief* affects the soil development of distinct soil horizons through its influence on soil drainage, erosion and runoff, soil temperature, and effective precipitation. Relief is variable ranging from nearly level flood plains and terraces, to steep to very steep mountains.

In the valley, the potential for runoff and water erosion is much lower because the topography is nearly level to gently sloping. These soils tend to have darker surface layers and developed subsoils.

Very steep exposed slopes have high runoff and significant soil erosion. These soils are less developed and are shallow and moderately deep to bedrock. Comodore is an example of soils with high runoff and significant erosion on steep mountain slopes. While mountains have very steep slopes, thick stands of conifers often cover these slopes, preventing runoff and erosion.

*Aspect* has a dramatic effect on vegetation and soil development in the mountains. South-facing slopes are significantly warmer and drier than north-facing slopes. Vegetation on south-facing slopes is dominated by pinyon and juniper trees, which provide very little canopy cover and often inhibit growth of grass species at ground level. This results in shallow soils with very little development. Culebra soils are found on steep south-facing slopes in the mountains. North-facing slopes are much cooler and have more effective precipitation. Vegetation is dominated by ponderosa pine, Douglas-fir, and white fir, and mid-sized grass species. Developed subsoils are common, and soil depths ranges from shallow to very deep. Alfisols such as Seitz and Laveta are common on these slopes.

**Time**

“Time zero” for soils is described as the point at which a pedologically catastrophic event is completed, initiating a new cycle of soil development (Buol and others, 1980). All of the other factors of soil formation (*parent material, climate, relief*, and *living organisms*) need *time* to influence the properties of developing soils. Soil development is reflected by such characteristics as accumulation of organic matter, degree of structure, evidence of clay movement, depth to calcium carbonate, and thickness of the surface and subsoil.

*Time* is required for horizons to form. The longer a soil surface has been exposed to soil-forming agents like vegetation and precipitation, the greater the development of soil horizons. Soils that formed in recent alluvium, recent eolian sediments, or on very steep slopes where erosion is active, show very little horizon development. Soils on older, stable surfaces have well developed horizons because the rate of soil formation has exceeded the rate of geologic erosion or deposition. Kibin, Mesita, Stunner, and Trinchera are examples of soils that formed on stable landscapes with strong development. Soils become more leached, more acid, and more clayey with time. Areas with higher precipitation usually have accelerated soil development.

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# Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the “National Soil Survey Handbook” (available in local offices of the Natural Resources Conservation Service or on the Internet).

**ABC soil.** A soil having an A, a B, and a C horizon.

**AC soil.** A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

**Aeration, soil.** The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

**Aggregate, soil.** Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

**Alkali (sodic) soil.** A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

**Alluvial fan.** A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

**Alluvium.** Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

**Alpha,alpha-dipyridyl.** A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

**Animal unit month (AUM).** The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

**Aquic conditions.** Current soil wetness characterized by saturation, reduction, and redoximorphic features.

**Argillic horizon.** A subsoil horizon characterized by an accumulation of illuvial clay.

**Arroyo.** The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in unconsolidated material. It is usually dry but can be transformed into a temporary watercourse or short-lived torrent after heavy rain within the watershed.

**Aspect.** The direction toward which a slope faces. Also called slope aspect.

**Association, soil.** A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

**Available water capacity (available moisture capacity).** The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

| | |
|---|---|
| Very low | 0 to 3 |
| Low | 3 to 6 |
| Moderate | 6 to 9 |
| High | 9 to 12 |
| Very high | more than 12 |

**Backslope.** The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

**Basal area.** The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

**Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

**Base slope** (geomorphology). A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

**Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

**Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

**Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

**Bottom land.** An informal term loosely applied to various portions of a flood plain.

**Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.

**Breaks.** A landscape or tract of steep, rough or broken land dissected by ravines and gullies and marking a sudden change in topography.

**Breast height.** An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

**Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

**Caliche.** A general term for a prominent zone of secondary carbonate accumulation in surficial materials in warm, subhumid to arid areas. Caliche is formed by both geologic and pedologic processes. Finely crystalline calcium carbonate forms a nearly continuous surface-coating and void-filling medium in geologic (parent) materials. Cementation ranges from weak in nonindurated forms to very strong in indurated forms. Other minerals (e.g., carbonates, silicate, and sulfate) may occur as accessory cements. Most petrocalcic horizons and some calcic horizons are caliche.

**Canopy.** The leafy crown of trees or shrubs. (See *Crown*.)

**Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

**Catena.** A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.

**Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

**Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

**Channery soil material.** Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a *channer*.

**Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

**Cirque.** A steep-walled, semicircular or crescent-shaped, half-bowl-like recess or hollow, commonly situated at the head of a glaciated mountain valley or high on the side of a mountain. It was produced by the erosive activity of a mountain glacier. It commonly contains a small round lake (tarn).

**Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

**Clay depletions.** See *Redoximorphic features*.

**Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

**Claypan.** A dense, compact, slowly permeable subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. A claypan is commonly hard when dry and plastic and sticky when wet.

**Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

**Coarse textured soil.** Sand or loamy sand.

**Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

**Cobbly soil material.** Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

**COLE (coefficient of linear extensibility).** See *Linear extensibility*.

**Colluvium.** Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

**Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

**Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

**Concretions.** See *Redoximorphic features*.

**Conglomerate.** A coarse grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

**Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

**Consistence, soil.** Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

**Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

**Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

**Corrosion** (geomorphology). A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.

**Corrosion** (soil survey interpretations). Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

**Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

**Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

**Cropping system.** Growing crops according to a planned system of rotation and management practices.

**Crown.** The upper part of a tree or shrub, including the living branches and their foliage.

**Cryoturbate.** A mass of soil or other unconsolidated earthy material moved or disturbed by frost action. It is typically coarser than the underlying material.

**Cutbanks cave** (in tables). The walls of excavations tend to cave in or slough.

**Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

**Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.

**Dense layer** (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

**Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

**Depth to rock** (in tables). Bedrock is too near the surface for the specified use.

**Drainage class** (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

**Drainage, surface.** Runoff, or surface flow of water, from an area.

**Drainageway.** A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

**Dune.** A low mound, ridge, bank, or hill of loose, windblown granular material (generally sand), either barren and capable of movement from place to place or covered and stabilized with vegetation but retaining its characteristic shape.

**Ecological site.** An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

**Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

**Endosaturation.** A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

**Eolian deposit.** Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.

**Ephemeral stream.** A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

**Episaturation.** A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

**Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

*Erosion* (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

*Erosion* (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

**Erosion surface.** A land surface shaped by the action of erosion, especially by running water.

**Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Most commonly applied to cliffs produced by differential erosion. Synonym: *scarp*.

**Excess fines** (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

**Excess lime** (in tables). Excess carbonates in the soil that restrict the growth of some plants.

**Excess salts** (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

**Excess sodium** (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

**Extrusive rock.** Igneous rock derived from deep-seated molten matter (magma) deposited and cooled on the earth's surface.

**Fan remnant.** A general term for landforms that are the remaining parts of older fan landforms, such as alluvial fans, that have been either dissected or partially buried.

**Fast intake** (in tables). The rapid movement of water into the soil.

**Fibric soil material (peat).** The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

**Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

**Fine textured soil.** Sandy clay, silty clay, or clay.

**Flagstone.** A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

**Flood plain.** The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

**Flood-plain landforms.** A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, flood-plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

**Fluvial.** Of or pertaining to rivers or streams; produced by stream or river action.

**Foothills.** A region of steeply sloping hills that fringes a mountain range or high-plateau escarpment. The hills have relief of as much as 1,000 feet (300 meters).

**Footslope.** The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

**Forest cover.** All trees and other woody plants (underbrush) covering the ground in a forest.

**Forest type.** A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

**Fragile** (in tables). A soil that is easily damaged by use or disturbance.

**Frost action** (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

**Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

**Glaciofluvial deposits.** Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur in the form of outwash plains, valley trains, deltas, kames, eskers, and kame terraces.

**Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

**Gravel.** Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

**Gravelly soil material.** Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

**Green manure crop** (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

**Ground water.** Water filling all the unblocked pores of the material below the water table.

**Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

**Hard to reclaim** (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

**Hemic soil material (mucky peat).** Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

**Hill.** A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

**Hillslope.** A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

**Horizon, soil.** A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

*O horizon.*—An organic layer of fresh and decaying plant residue.

*A horizon.*—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

*E horizon.*—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

*B horizon.*—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

*C horizon.*—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

*Cr horizon.*—Soft, consolidated bedrock beneath the soil.

*R layer.*—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

**Humus.** The well decomposed, more or less stable part of the organic matter in mineral soils.

**Hydrologic soil groups.** Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

**Igneous rock.** Rock that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

**Illuviation.** The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

**Impervious soil.** A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

**Increasers.** Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

**Infiltration.** The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

**Infiltration capacity.** The maximum rate at which water can infiltrate into a soil under a given set of conditions.

**Infiltration rate.** The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

**Intake rate.** The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

| | |
|---|---|
| Less than 0.2 | very low |
| 0.2 to 0.4 | low |
| 0.4 to 0.75 | moderately low |
| 0.75 to 1.25 | moderate |
| 1.25 to 1.75 | moderately high |
| 1.75 to 2.5 | high |
| More than 2.5 | very high |

**Intermittent stream.** A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

**Invaders.** On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

**Iron depletions.** See *Redoximorphic features*.

**Irrigation.** Application of water to soils to assist in production of crops. Methods of irrigation are:

*Controlled flooding.*—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

*Drip (or trickle).*—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

*Furrow.*—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

*Sprinkler.*—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

*Subirrigation.*—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

*Wild flooding.*—Water, released at high points, is allowed to flow onto an area without controlled distribution.

**$K_{sat}$.** Saturated hydraulic conductivity. (See *Permeability.*)

**Lacustrine deposit.** Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

**Large stones** (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

**Leaching.** The removal of soluble material from soil or other material by percolating water.

**Linear extensibility.** Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

**Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state.

**Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

**Loess.** Material transported and deposited by wind and consisting dominantly of silt-sized particles.

**Low strength.** The soil is not strong enough to support loads.

**Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.

**Mesa.** A broad, nearly flat topped and commonly isolated landmass bounded by steep slopes or precipitous cliffs and capped by layers of resistant, nearly horizontal rocky material. The summit width is characteristically greater than the height of the bounding escarpments.

**Metamorphic rock.** Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth's crust. Nearly all such rocks are crystalline.

**Mine spoil.** An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.

**Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

**Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.

**Miscellaneous area.** A kind of map unit that has little or no natural soil and supports little or no vegetation.

**Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.

**Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.

**Mollic epipedon.** A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

**Moraine.** In terms of glacial geology, a mound, ridge, or other topographically distinct accumulation of unsorted, unstratified drift, predominantly till, deposited primarily by the direct action of glacial ice in a variety of landforms. Also, a general term for a landform composed mainly of till (except for kame moraines, which are composed mainly of stratified outwash) that has been deposited by a glacier. Some types of moraines are disintegration, end, ground, kame, lateral, recessional, and terminal.

**Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

**Mottling, soil.** Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

**Mountain.** A generic term for an elevated area of the land surface, rising more than 1,000 feet (300 meters) above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range. Mountains are formed primarily by tectonic activity and/or volcanic action but can also be formed by differential erosion.

**Muck.** Dark, finely divided, well decomposed organic soil material. (See *Sapric soil material*.)

**Munsell notation.** A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

**Natric horizon.** A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

**Neutral soil.** A soil having a pH value of 6.6 to 7.3. (See *Reaction, soil*.)

**Nutrient, plant.** Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

**Organic matter.** Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

| | |
|---|---|
| Very low | less than 0.5 percent |
| Low | 0.5 to 1.0 percent |
| Moderately low | 1.0 to 2.0 percent |
| Moderate | 2.0 to 4.0 percent |
| High | 4.0 to 8.0 percent |
| Very high | more than 8.0 percent |

**Outwash.** Stratified and sorted sediments (chiefly sand and gravel) removed or "washed out" from a glacier by meltwater streams and deposited in front of or beyond the end moraine or the margin of a glacier. The coarser material is deposited nearer to the ice.

**Outwash plain.** An extensive lowland area of coarse textured glaciofluvial material. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

**Parent material.** The unconsolidated organic and mineral material in which soil forms.

**Peat.** Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See *Fibric soil material*.)

**Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.

**Pedon.** The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

**Percolation.** The movement of water through the soil.

**Percs slowly** (in tables). The slow movement of water through the soil adversely affects the specified use.

**Permeability.** The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

| | |
|---|---|
| Impermeable | less than 0.0015 inch |
| Very slow | 0.0015 to 0.06 inch |
| Slow | 0.06 to 0.2 inch |
| Moderately slow | 0.2 to 0.6 inch |
| Moderate | 0.6 inch to 2.0 inches |
| Moderately rapid | 2.0 to 6.0 inches |
| Rapid | 6.0 to 20 inches |
| Very rapid | more than 20 inches |

**pH value.** A numerical designation of acidity and alkalinity in soil. (See *Reaction, soil.*)

**Phase, soil.** A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

**Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

**Pitting** (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

**Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.

**Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

**Plinthite.** The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

**Plowpan.** A compacted layer formed in the soil directly below the plowed layer.

**Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

**Poor filter** (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

**Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

**Pore linings.** See *Redoximorphic features*.

**Potential native plant community.** See *Climax plant community*.

**Potential rooting depth (effective rooting depth).** Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

**Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.

**Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.

**Rangeland.** Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

**Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

| | |
|---|---|
| Ultra acid | less than 3.5 |
| Extremely acid | 3.5 to 4.4 |
| Very strongly acid | 4.5 to 5.0 |
| Strongly acid | 5.1 to 5.5 |
| Moderately acid | 5.6 to 6.0 |
| Slightly acid | 6.1 to 6.5 |
| Neutral | 6.6 to 7.3 |
| Slightly alkaline | 7.4 to 7.8 |
| Moderately alkaline | 7.9 to 8.4 |
| Strongly alkaline | 8.5 to 9.0 |
| Very strongly alkaline | 9.1 and higher |

**Redoximorphic features.** Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:

   A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*

   B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*

   C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.

2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:

   A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*

B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).

3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

**Reduced matrix.** See *Redoximorphic features*.

**Relief.** The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

**Residuum (residual soil material).** Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

**Riser.** The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

**Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

**Root zone.** The part of the soil that can be penetrated by plant roots.

**Rooting depth** (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

**Runoff.** The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

**Saline soil.** A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

**Sand.** As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

**Sandstone.** Sedimentary rock containing dominantly sand-sized particles.

**Sapric soil material (muck).** The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

**Saturated hydraulic conductivity ($K_{sat}$).** See *Permeability*.

**Saturation.** Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

**Sedimentary rock.** A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.

**Seepage** (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

**Sequum.** A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See *Eluviation*.)

**Series, soil.** A group of soils that have profiles that are almost alike. All the soils of a given series have horizons that are similar in composition, thickness, and arrangement.

**Shoulder.** The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

**Shrink-swell** (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

**Shrub-coppice dune.** A small, streamlined dune that forms around brush and clump vegetation.

**Side slope** (geomorphology). A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

**Silica.** A combination of silicon and oxygen. The mineral form is called quartz.

**Silica-sesquioxide ratio.** The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

**Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

**Siltstone.** An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay.

**Similar soils.** Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

**Site index.** A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

**Slickensides** (pedogenic). Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

**Slippage** (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

**Slope.** The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

**Slope** (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

**Slope alluvium.** Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope-wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished peds and sorting of rounded or subrounded pebbles or cobbles distinguish these materials from unsorted colluvial deposits.

**Slow intake** (in tables). The slow movement of water into the soil.

**Slow refill** (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

**Small stones** (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

**Sodic (alkali) soil.** A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

**Sodicity.** The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of $Na^{+}$ to $Ca^{++} + Mg^{++}$. The degrees of sodicity and their respective ratios are:

| | |
|---|---|
| Slight | less than 13:1 |
| Moderate | 13-30:1 |
| Strong | more than 30:1 |

**Sodium adsorption ratio (SAR).** A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

**Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

**Soil separates.** Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

| | |
|---|---|
| Very coarse sand | 2.0 to 1.0 |
| Coarse sand | 1.0 to 0.5 |
| Medium sand | 0.5 to 0.25 |
| Fine sand | 0.25 to 0.10 |
| Very fine sand | 0.10 to 0.05 |
| Silt | 0.05 to 0.002 |
| Clay | less than 0.002 |

**Solum.** The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

**Stones.** Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

**Stony.** Refers to a soil containing stones in numbers that interfere with or prevent tillage.

**Stream terrace.** One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

**Structure, soil.** The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

**Subsoil.** Technically, the B horizon; roughly, the part of the solum below plow depth.

**Substratum.** The part of the soil below the solum.

**Subsurface layer.** Any surface soil horizon (A, E, AB, or EB) below the surface layer.

**Summit.** The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

**Surface layer.** The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

**Surface soil.** The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

**Talus.** Rock fragments of any size or shape (commonly coarse and angular) derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose broken rock formed chiefly by falling, rolling, or sliding.

**Taxadjuncts.** Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

**Terrace** (conservation). An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

**Terrace** (geomorphology). A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.

**Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

**Thin layer** (in tables). Otherwise suitable soil material that is too thin for the specified use.

**Till.** Dominantly unsorted and nonstratified drift, generally unconsolidated and deposited directly by a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, stones, and boulders; rock fragments of various lithologies are embedded within a finer matrix that can range from clay to sandy loam.

**Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

**Toeslope.** The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

**Too arid** (in tables). The soil is dry most of the time, and vegetation is difficult to establish.

**Topsoil.** The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

**Toxicity** (in tables). Excessive amount of toxic substances, such as sodium or sulfur, that severely hinder establishment of vegetation or severely restrict plant growth.

**Tread.** The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.

**Tuff.** A generic term for any consolidated or cemented deposit that is 50 percent or more volcanic ash.

**Unstable fill** (in tables). Risk of caving or sloughing on banks of fill material.

**Upland.** An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

**Valley fill.** The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) so as to fill or partly fill a valley.

**Weathering.** All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

**Well graded.** Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

# Tables

**Table 1.--Temperature and precipitation**

**(Recorded in the period 1971-2000 at Blanca, CO-0776)**

| Month | Temperature (Degrees F.) | | | | | | Precipitation (Inches) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | avg. daily max. | avg. daily min. | avg. | 2 yrs in 10 will have max. temp. >than | 2 yrs in 10 will have min. temp. <than | avg. # of grow. deg. days* | avg. | 2 yrs. in 10 will have less than | 2 yrs. in 10 will have more than | avg. # of days w/.1 or more | avg. total snow fall |
| January | 34.6 | 1.4 | 18.0 | 54 | -23 | 0 | 0.32 | 0.08 | 0.57 | 1 | 4.7 |
| February | 40.7 | 9.0 | 24.9 | 59 | -16 | 1 | 0.31 | 0.08 | 0.49 | 1 | 3.9 |
| March | 49.2 | 18.7 | 33.9 | 68 | -0 | 24 | 0.58 | 0.13 | 1.08 | 1 | 6.0 |
| April | 57.5 | 25.2 | 41.4 | 75 | 7 | 118 | 0.65 | 0.19 | 1.06 | 2 | 4.3 |
| May | 67.0 | 34.2 | 50.6 | 81 | 18 | 335 | 1.00 | 0.31 | 1.66 | 2 | 0.9 |
| June | 77.6 | 42.3 | 59.9 | 89 | 29 | 593 | 0.74 | 0.24 | 1.23 | 2 | 0.0 |
| July | 81.5 | 47.7 | 64.6 | 91 | 37 | 758 | 1.44 | 0.92 | 1.96 | 4 | 0.0 |
| August | 79.0 | 46.0 | 62.5 | 88 | 36 | 689 | 1.50 | 0.74 | 2.18 | 4 | 0.0 |
| September | 72.7 | 37.8 | 55.3 | 85 | 21 | 454 | 1.01 | 0.44 | 1.52 | 3 | 0.0 |
| October | 61.8 | 26.2 | 44.0 | 77 | 6 | 176 | 0.79 | 0.27 | 1.26 | 2 | 1.9 |
| November | 46.5 | 14.2 | 30.4 | 66 | -8 | 15 | 0.57 | 0.12 | 1.01 | 1 | 4.7 |
| December | 36.2 | 3.6 | 19.9 | 55 | -20 | 0 | 0.34 | 0.07 | 0.58 | 1 | 4.5 |
| Yearly : | | | | | | | | | | | |
| Average | 58.7 | 25.5 | 42.1 | --- | --- | --- | ---- | ---- | ---- | --- | --- |
| Extreme | 93 | -38 | --- | 91 | -27 | --- | ---- | ---- | ---- | --- | --- |
| Total | --- | --- | --- | --- | --- | 3164 | 9.25 | 7.53 | 10.67 | 24 | 30.9 |

**Average # of days per year with at least 1 inch of snow on the ground: 35**

***A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (Threshold: 40.0 deg. F).**

**Table 2.--Freeze dates in spring and fall**

**(Recorded in the period 1971-2000 at Blanca, CO-0776)**

| | Temperature | | |
|---|---|---|---|
| Probability | 24°F or lower | 28°F or lower | 32°F or lower |
| Last freezing temperature in spring: | | | |
| 1 year in 10 later than-- | May 21 | June 1 | June 21 |
| 2 years in 10 later than-- | May 16 | May 27 | June 16 |
| 5 years in 10 later than-- | May 6 | May 18 | June 6 |
| First freezing temperature in fall: | | | |
| 1 yr. in 10 earlier than-- | September 22 | September 13 | September 5 |
| 2 yrs. in 10 earlier than-- | September 26 | September 17 | September 9 |
| 5 yrs. in 10 earlier than-- | October 5 | September 25 | September 17 |

**Table 3.--Growing season**

**(Recorded for the period 1971-2000 at Blanca, CO-0776)**

| | Daily Minimum Temperature | | |
|---|---|---|---|
| Probability | # days > 24°F | # days > 28°F | # days > 32°F |
| 9 years in 10 | 127 | 107 | 81 |
| 8 years in 10 | 135 | 115 | 88 |
| 5 years in 10 | 150 | 129 | 102 |
| 2 years in 10 | 166 | 143 | 116 |
| 1 year in 10 | 174 | 150 | 123 |

Table 4.--Acreage and proportionate extent of the soils

| Map symbol | Soil name | Acres | Percent |
|---|---|---|---|
| AmC | Amalia very gravelly coarse sandy loam, 3 to 9 percent slopes | 8,205 | 1.0 |
| AmE | Amalia very gravelly coarse sandy loam, 9 to 35 percent slopes | 4,658 | 0.6 |
| Aq | Cumulic Cryaquolls, 0 to 2 percent slopes | 895 | 0.1 |
| BfA | Blanfort fine sandy loam, 0 to 3 percent slopes | 5,303 | 0.7 |
| BfD | Blanfort fine sandy loam, 3 to 9 percent slopes | 4,390 | 0.6 |
| CsA | Cososa loamy sand, 0 to 3 percent slopes | 57,053 | 7.2 |
| CsD | Cososa loamy sand, 3 to 9 percent slopes | 21,175 | 2.7 |
| CtA | Costilla loamy sand, 0 to 3 percent slopes | 3,974 | 0.5 |
| CuF | Comodore-Uracca-Rock outcrop complex, 5 to 65 percent slopes | 31,240 | 4.0 |
| DAM | Dam | 54 | * |
| DrD | Durreo gravelly fine sandy loam, 1 to 9 percent slopes | 5,797 | 0.7 |
| EaA | Eastdale loam, 0 to 1 percent slopes | 12,396 | 1.6 |
| FLB | Fluvents, nearly level | 578 | * |
| FtA | Fuertes sandy loam, 0 to 2 percent slopes | 12,401 | 1.6 |
| GmE | Aquic Dystrocryepts | 94 | * |
| Gn | Angostura very stony loam, 20 to 65 percent slopes | 412 | * |
| GP | Pits, gravel | 36 | * |
| GpA | Graypoint sandy loam, 0 to 2 percent slopes | 4,880 | 0.6 |
| GrA | Grayco sandy loam, 0 to 2 percent slopes | 13,900 | 1.8 |
| GrC | Grayco sandy loam, 2 to 6 percent slopes | 6,491 | 0.8 |
| Ho | Hooper, wind hummocky-Hooper complex, 0 to 2 percent slopes | 2,252 | 0.3 |
| Hp | Hooper-Hooper, wind hummocky complex, 0 to 2 percent slopes | 2,278 | 0.3 |
| KbA | Kibin fine sandy loam, 0 to 3 percent slopes | 18,679 | 2.4 |
| KbC | Kibin fine sandy loam, 3 to 5 percent slopes | 3,546 | 0.4 |
| LbF | Lambe-Woodhall complex, 5 to 65 percent slopes | 18,126 | 2.3 |
| LeF | Fallriver-Rock outcrop complex, 10 to 65 percent slopes | 61,903 | 7.8 |
| LH | Leadville-Howlett complex, 5 to 40 percent slopes, stony | 1,262 | 0.2 |
| M | Pits, mine | 456 | * |
| McA | McGinty fine sandy loam, 0 to 1 percent slopes | 66,238 | 8.4 |
| McB | McGinty fine sandy loam, 1 to 3 percent slopes | 8,408 | 1.1 |
| McC | McGinty fine sandy loam, 3 to 9 percent slopes | 13,424 | 1.7 |
| MR | Mirror-Rock outcrop complex, 40 to 70 percent slopes | 13,420 | 1.7 |
| MsA | Mosca loamy fine sand, 0 to 2 percent slopes | 4,249 | 0.5 |
| MtA | Mesita silty clay loam, 0 to 1 percent slopes | 3,428 | 0.4 |

Table 4.--Acreage and proportionate extent of the soils--continued

| Map symbol | Soil name | Acres | Percent |
|---|---|---|---|
| MuC | Morval-Uracca complex, 3 to 9 percent slopes | 7,113 | 0.9 |
| MuE | Morval-Uracca complex, 5 to 35 percent slopes | 18,865 | 2.4 |
| PtC | Potrio gravelly silt loam, 1 to 6 percent slopes | 14,506 | 1.8 |
| RF | Rock outcrop-Rubble land complex, 45 to 90 percent slopes | 21,956 | 2.8 |
| RrA | Trinchera fine sandy loam, 0 to 1 percent slopes | 11,655 | 1.5 |
| RrB | Trinchera fine sandy loam, 1 to 3 percent slopes | 16,823 | 2.1 |
| RrD | Trinchera fine sandy loam, 3 to 9 percent slopes | 20,032 | 2.5 |
| ShA | Shawa fine sandy loam, 0 to 3 percent slopes | 3,778 | 0.5 |
| ShC | Shawa fine sandy loam, 3 to 9 percent slopes | 11,428 | 1.4 |
| SL | Scandard-Leadville-Rock outcrop complex, 35 to 60 percent slopes, stony-- | 287 | * |
| SpD | Sanpedro-Potrio-Rock outcrop complex, 3 to 9 percent slopes | 11,169 | 1.4 |
| SpF | Sanpedro-Potrio-Rock outcrop complex, 9 to 65 percent slopes | 12,671 | 1.6 |
| StB | Stunner loam, 1 to 3 percent slopes | 3,500 | 0.4 |
| StC | Stunner loam, 3 to 6 percent slopes | 6,391 | 0.8 |
| SzF | Seitz-Tolvar complex, 10 to 65 percent slopes | 48,533 | 6.1 |
| TlD | Tolvar-Laveta complex, 3 to 9 percent slopes | 4,456 | 0.6 |
| TlF | Tolvar-Laveta-Rock outcrop complex, 9 to 65 percent slopes | 35,932 | 4.6 |
| ToF | Tolvar gravelly sandy loam, 10 to 65 percent slopes | 31,253 | 4.0 |
| TvD | Travelers-Rock outcrop complex, 1 to 9 percent slopes | 13,930 | 1.8 |
| TvF | Travelers-Rock outcrop complex, 9 to 50 percent slopes | 19,056 | 2.4 |
| UmF | Uracca-Morval complex, 5 to 40 percent slopes | 10,171 | 1.3 |
| UrF | Uracca-Culebra complex, 5 to 50 percent slopes | 35,301 | 4.5 |
| VeA | Ventero mucky peat, 0 to 1 percent slopes | 283 | * |
| VgA | Vastine-Gerrard complex, 0 to 1 percent slopes | 14,942 | 1.9 |
| W | Water | 3,968 | 0.5 |
| | Total | 789,600 | 100.0 |

* Less than 0.1 percent.

Table 5.--Irrigated yields by map unit component

(Yields are those that can be expected under a high level of management. They are for irrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

| Map symbol and soil name | Land capability | Alfalfa hay | Barley | Grass hay | Oats | Irish potatoes |
|---|---|---|---|---|---|---|
| | | Tons | Bu | Tons | Bu | Cwt |
| AmC: | | | | | | |
| Amalia | 4c | 3.50 | 100.00 | 2.00 | 90.00 | --- |
| AmE: | | | | | | |
| Amalia | --- | --- | --- | --- | --- | --- |
| Aq: | | | | | | |
| Cumulic Cryaquolls | --- | --- | --- | --- | --- | --- |
| BfA: | | | | | | |
| Blanfort | 4c | 4.00 | 120.00 | 3.00 | 110.00 | 400.00 |
| BfD: | | | | | | |
| Blanfort | 6e | 3.50 | 100.00 | 2.50 | 90.00 | 325.00 |
| CsA: | | | | | | |
| Cososa | 4e | 4.00 | 120.00 | 3.00 | 110.00 | 400.00 |
| CsD: | | | | | | |
| Cososa | 6e | 3.50 | 100.00 | 2.50 | 90.00 | 325.00 |
| CtA: | | | | | | |
| Costilla | 4e | 4.00 | 120.00 | 3.00 | 110.00 | 400.00 |
| CuF: | | | | | | |
| Comodore | --- | --- | --- | --- | --- | --- |
| Rock outcrop | --- | --- | --- | --- | --- | --- |

Table 5.--Irrigated yields by map unit component--continued

| Map symbol and soil name | Land capability | Alfalfa hay | Barley | Grass hay | Oats | Irish potatoes |
|---|---|---|---|---|---|---|
| | | Tons | Bu | Tons | Bu | Cwt |
| CuF: | | | | | | |
| Uracca | --- | --- | --- | --- | --- | --- |
| DAM: | | | | | | |
| Dam | --- | --- | --- | --- | --- | --- |
| DrD: | | | | | | |
| Durreo | --- | --- | --- | --- | --- | --- |
| EaA: | | | | | | |
| Eastdale | 6w | 2.00 | --- | 3.00 | 100.00 | --- |
| FLB: | | | | | | |
| Fluvents | --- | --- | --- | --- | --- | --- |
| FtA: | | | | | | |
| Fuertes | 4w | 3.00 | 110.00 | 3.00 | 100.00 | --- |
| GmE: | | | | | | |
| Aquic Dystrocryepts | --- | --- | --- | --- | --- | --- |
| Gn: | | | | | | |
| Angostura | --- | --- | --- | --- | --- | --- |
| GP: | | | | | | |
| Pits, gravel | --- | --- | --- | --- | --- | --- |
| GpA: | | | | | | |
| Graypoint | 4s | 4.50 | 120.00 | 3.50 | 110.00 | 350.00 |
| GrA: | | | | | | |
| Grayco | 4s | 4.50 | 120.00 | 3.50 | 110.00 | 350.00 |

Table 5.--Irrigated yields by map unit component--continued

| Map symbol and soil name | Land capability | Alfalfa hay | Barley | Grass hay | Oats | Irish potatoes |
|---|---|---|---|---|---|---|
| | | Tons | Bu | Tons | Bu | Cwt |
| GrC: | | | | | | |
| Grayco | 4s | 4.00 | 100.00 | 3.00 | 90.00 | 300.00 |
| Ho: | | | | | | |
| Hooper, loamy sand | 6e | 2.50 | 70.00 | 2.00 | 50.00 | --- |
| Hooper, clay loam | 6s | 2.00 | 50.00 | 1.50 | 30.00 | --- |
| Hp: | | | | | | |
| Hooper, clay loam | 6s | 2.00 | 50.00 | 1.50 | 30.00 | --- |
| Hooper, loamy sand | 6e | 2.50 | 70.00 | 2.00 | 50.00 | --- |
| KbA: | | | | | | |
| Kibin | 3e | 3.50 | --- | 3.00 | 75.00 | --- |
| KbC: | | | | | | |
| Kibin | 3e | 3.50 | --- | 3.00 | 75.00 | --- |
| LbF: | | | | | | |
| Lambe | --- | --- | --- | --- | --- | --- |
| Woodhall | --- | --- | --- | --- | --- | --- |
| LeF: | | | | | | |
| Fallriver | --- | --- | --- | --- | --- | --- |
| Rock outcrop | --- | --- | --- | --- | --- | --- |
| LH: | | | | | | |
| Leadville | --- | --- | --- | --- | --- | --- |
| Howlett | --- | --- | --- | --- | --- | --- |

Table 5.--Irrigated yields by map unit component--continued

| Map symbol and soil name | Land capability | Alfalfa hay | Barley | Grass hay | Oats | Irish potatoes |
|---|---|---|---|---|---|---|
| | | Tons | Bu | Tons | Bu | Cwt |
| M: | | | | | | |
| Pits, mine | --- | --- | --- | --- | --- | --- |
| McA: | | | | | | |
| McGinty | 4e | 4.50 | 130.00 | 3.50 | 120.00 | 425.00 |
| McB: | | | | | | |
| McGinty | 4e | 4.50 | 130.00 | 3.50 | 120.00 | 400.00 |
| McC: | | | | | | |
| McGinty | 4e | 4.50 | 120.00 | 3.50 | 100.00 | 350.00 |
| MR: | | | | | | |
| Mirror | --- | --- | --- | --- | --- | --- |
| Rock outcrop | --- | --- | --- | --- | --- | --- |
| MsA: | | | | | | |
| Mosca | 7e | 3.50 | 100.00 | 2.00 | 80.00 | 325.00 |
| MtA: | | | | | | |
| Mesita | --- | --- | --- | --- | --- | --- |
| MuC: | | | | | | |
| Morval | --- | --- | --- | --- | --- | --- |
| Uracca | --- | --- | --- | --- | --- | --- |
| MuE: | | | | | | |
| Morval | --- | --- | --- | --- | --- | --- |
| Uracca | --- | --- | --- | --- | --- | --- |

Table 5.--Irrigated yields by map unit component--continued

| Map symbol and soil name | Land capability | Alfalfa hay | Barley | Grass hay | Oats | Irish potatoes |
|---|---|---|---|---|---|---|
| | | Tons | Bu | Tons | Bu | Cwt |
| PtC: | | | | | | |
| Potrio | --- | --- | --- | --- | --- | --- |
| RF: | | | | | | |
| Rock outcrop | --- | --- | --- | --- | --- | --- |
| Rubble land | --- | --- | --- | --- | --- | --- |
| RrA: | | | | | | |
| Trinchera | 4e | 4.50 | 120.00 | 3.00 | 110.00 | 350.00 |
| RrB: | | | | | | |
| Trinchera | 4e | 4.50 | 110.00 | 3.00 | 100.00 | 300.00 |
| RrD: | | | | | | |
| Trinchera | --- | --- | --- | 3.00 | --- | --- |
| ShA: | | | | | | |
| Shawa | 4e | 5.00 | 120.00 | 4.00 | 110.00 | 250.00 |
| ShC: | | | | | | |
| Shawa | 6e | 4.50 | 110.00 | 3.50 | 100.00 | 150.00 |
| SL: | | | | | | |
| Scandard | --- | --- | --- | --- | --- | --- |
| Leadville | --- | --- | --- | --- | --- | --- |
| Rock outcrop | --- | --- | --- | --- | --- | --- |
| SpD: | | | | | | |
| Sanpedro | --- | --- | --- | --- | --- | --- |

Table 5.--Irrigated yields by map unit component--continued

| Map symbol and soil name | Land capability | Alfalfa hay | Barley | Grass hay | Oats | Irish potatoes |
|---|---|---|---|---|---|---|
| | | Tons | Bu | Tons | Bu | Cwt |
| SpD: | | | | | | |
| Potrio | --- | --- | --- | --- | --- | --- |
| Rock outcrop | --- | --- | --- | --- | --- | --- |
| SpF: | | | | | | |
| Sanpedro | --- | --- | --- | --- | --- | --- |
| Potrio | --- | --- | --- | --- | --- | --- |
| Rock outcrop | --- | --- | --- | --- | --- | --- |
| StB: | | | | | | |
| Stunner | 4c | 4.50 | 110.00 | 3.50 | 100.00 | 300.00 |
| StC: | | | | | | |
| Stunner | 4c | 4.00 | 110.00 | 3.50 | 100.00 | 250.00 |
| SzF: | | | | | | |
| Seitz | --- | --- | --- | --- | --- | --- |
| Tolvar | --- | --- | --- | --- | --- | --- |
| TlD: | | | | | | |
| Tolvar | --- | --- | --- | --- | --- | --- |
| Laveta | --- | --- | --- | --- | --- | --- |
| TlF: | | | | | | |
| Tolvar | --- | --- | --- | --- | --- | --- |
| Laveta | --- | --- | --- | --- | --- | --- |

Table 5.--Irrigated yields by map unit component--continued

| Map symbol and soil name | Land capability | Alfalfa hay | Barley | Grass hay | Oats | Irish potatoes |
|---|---|---|---|---|---|---|
| | | Tons | Bu | Tons | Bu | Cwt |
| TlF: | | | | | | |
| Rock outcrop | --- | --- | --- | --- | --- | --- |
| ToF: | | | | | | |
| Tolvar | --- | --- | --- | --- | --- | --- |
| TvD: | | | | | | |
| Travelers | --- | --- | --- | --- | --- | --- |
| Rock outcrop | --- | --- | --- | --- | --- | --- |
| TvF: | | | | | | |
| Travelers | --- | --- | --- | --- | --- | --- |
| Rock outcrop | --- | --- | --- | --- | --- | --- |
| UmF: | | | | | | |
| Uracca | --- | --- | --- | --- | --- | --- |
| Morval | --- | --- | --- | --- | --- | --- |
| UrF: | | | | | | |
| Uracca | --- | --- | --- | --- | --- | --- |
| Culebra | --- | --- | --- | --- | --- | --- |
| VeA: | | | | | | |
| Ventero | --- | --- | --- | --- | --- | --- |
| VgA: | | | | | | |
| Vastine | 4w | 3.50 | 90.00 | 2.00 | 80.00 | --- |
| Gerrard | 4w | 4.00 | 10.00 | 2.00 | 90.00 | --- |

**Table 5.--Irrigated yields by map unit component--continued**

| Map symbol and soil name | Land capability | Alfalfa hay | Barley | Grass hay | Oats | Irish potatoes |
|---|---|---|---|---|---|---|
| | | Tons | Bu | Tons | Bu | Cwt |
| W: Water | --- | --- | --- | --- | --- | --- |

**Table 6.--Prime and other important farmland**

**(Only the soils considered prime or important farmland are listed. Urban or built-up areas of the soils listed are not considered prime or important farmland. If a soil is prime or important farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)**

| Map symbol | Map unit name | Farmland Classification |
|---|---|---|
| KbA | Kibin fine sandy loam, 0 to 3 percent slopes | Farmland of statewide importance |
| KbC | Kibin fine sandy loam, 3 to 5 percent slopes | Farmland of statewide importance |
| ShA | Shawa fine sandy loam, 0 to 3 percent slopes | Farmland of statewide importance |
| StB | Stunner loam, 1 to 3 percent slopes | Prime farmland if irrigated |
| StC | Stunner loam, 3 to 6 percent slopes | Prime farmland if irrigated |

Table 7.--Ecological sites and characteristic native vegetation

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| AmC: | | | | | | | | |
| Amalia---------- | Valley Bench (R051XY278CO) | Favorable | 1,200 | western wheatgrass | 25 | | --- | --- |
| | | Normal | 900 | blue grama | 20 | | | |
| | | Unfavorable | 600 | Wyoming big sagebrush | 15 | | | |
| | | | | needleandthread | 15 | | | |
| | | | | Indian ricegrass | 10 | | | |
| | | | | fourwing saltbush | 5 | | | |
| | | | | sand dropseed | 5 | | | |
| | | | | winterfat | 5 | | | |
| AmE: | | | | | | | | |
| Amalia---------- | Valley Bench (R051XY278CO) | Favorable | 1,200 | western wheatgrass | 25 | | --- | --- |
| | | Normal | 900 | blue grama | 20 | | | |
| | | Unfavorable | 600 | Wyoming big sagebrush | 15 | | | |
| | | | | needleandthread | 15 | | | |
| | | | | Indian ricegrass | 10 | | | |
| | | | | fourwing saltbush | 5 | | | |
| | | | | sand dropseed | 5 | | | |
| | | | | winterfat | 5 | | | |
| Aq: | | | | | | | | |
| Cumulic Cryaquolls----- | Mountain Meadow (R048AY241CO) | Favorable | 4,000 | tufted hairgrass | 40 | | --- | --- |
| | | Normal | 3,000 | Nebraska sedge | 25 | | | |
| | | Unfavorable | 2,000 | slender wheatgrass | 15 | | | |
| | | | | sedge | 10 | | | |
| | | | | cinquefoil | 4 | | | |
| | | | | iris | 3 | | | |
| | | | | western yarrow | 3 | | | |
| BfA: | | | | | | | | |
| Blanfort-------- | Sandy Bench (R051XY273CO) | Favorable | 1,200 | Indian ricegrass | 30 | | --- | --- |
| | | Normal | 1,000 | blue grama | 20 | | | |
| | | Unfavorable | 800 | needleandthread | 10 | | | |
| | | | | skunkbush sumac | 10 | | | |
| | | | | buckwheat | 5 | | | |
| | | | | fourwing saltbush | 5 | | | |
| | | | | sand dropseed | 5 | | | |
| | | | | scarlet globemallow | 5 | | | |
| | | | | spike dropseed | 5 | | | |
| | | | | western wheatgrass | 5 | | | |

Table 7.--Ecological sites and characteristic native vegetation--continued

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| BfD: | | | | | | | | |
| Blanfort-------- | Sandy Bench (R051XY273CO) | Favorable | 1,200 | Indian ricegrass | 30 | | --- | --- |
| | | Normal | 1,000 | blue grama | 20 | | | |
| | | Unfavorable | 800 | needleandthread | 10 | | | |
| | | | | skunkbush sumac | 10 | | | |
| | | | | buckwheat | 5 | | | |
| | | | | fourwing saltbush | 5 | | | |
| | | | | sand dropseed | 5 | | | |
| | | | | scarlet globemallow | 5 | | | |
| | | | | spike dropseed | 5 | | | |
| | | | | western wheatgrass | 5 | | | |
| CsA: | | | | | | | | |
| Cososa---------- | Sandy Bench (R051XY273CO) | Favorable | 1,200 | Indian ricegrass | 30 | | --- | --- |
| | | Normal | 1,000 | blue grama | 20 | | | |
| | | Unfavorable | 800 | needleandthread | 10 | | | |
| | | | | skunkbush | 10 | | | |
| | | | | buckwheat | 5 | | | |
| | | | | fourwing saltbush | 5 | | | |
| | | | | sand dropseed | 5 | | | |
| | | | | scarlet globemallow | 5 | | | |
| | | | | spike dropseed | 5 | | | |
| | | | | western wheatgrass | 5 | | | |
| CsD: | | | | | | | | |
| Cososa---------- | Sandy Bench (R051XY273CO) | Favorable | 1,200 | Indian ricegrass | 30 | | --- | --- |
| | | Normal | 1,000 | blue grama | 20 | | | |
| | | Unfavorable | 800 | needleandthread | 10 | | | |
| | | | | skunkbush | 10 | | | |
| | | | | buckwheat | 5 | | | |
| | | | | fourwing saltbush | 5 | | | |
| | | | | sand dropseed | 5 | | | |
| | | | | scarlet globemallow | 5 | | | |
| | | | | spike dropseed | 5 | | | |
| | | | | western wheatgrass | 5 | | | |

Table 7.--Ecological sites and characteristic native vegetation--continued

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| CtA: | | | | | | | | |
| Costilla-------- | Valley Sand (R051XY294CO) | Favorable | 1,000 | Indian ricegrass | 65 | | --- | --- |
| | | Normal | 800 | Greene's rabbitbrush | 15 | | | |
| | | Unfavorable | 600 | blue grama | 10 | | | |
| | | | | rubber rabbitbrush | 5 | | | |
| | | | | buckwheat | | | | |
| | | | | mustard | | | | |
| | | | | prairie sagewort | | | | |
| | | | | sand dropseed | | | | |
| | | | | scarlet globemallow | | | | |
| CuF: | | | | | | | | |
| Comodore-------- | Pinyon-Juniper (R034XY909CO) | Favorable | 800 | blue grama | 10 | | Rocky Mountain juniper | --- |
| | | Normal | 600 | mountain mahogany | 10 | | twoneedle pinyon | --- |
| | | Unfavorable | 400 | slimstem muhly | 10 | | | |
| | | | | wax currant | 10 | | | |
| | | | | scarlet gilia | 5 | | | |
| | | | | sulphur-flower buckwheat | 5 | | | |
| Rock outcrop---- | --- (No ID) | Favorable | --- | | | | --- | --- |
| | | Normal | --- | | | | | |
| | | Unfavorable | --- | | | | | |
| Uracca---------- | Foothill Loam (R051XY317CO) | Favorable | 1,600 | western wheatgrass | 40 | | --- | --- |
| | | Normal | 1,200 | needleandthread | 15 | | | |
| | | Unfavorable | 800 | blue grama | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | littleseed ricegrass | 10 | | | |
| | | | | sedge | 10 | | | |
| | | | | rubber rabbitbrush | 5 | | | |
| DAM: | | | | | | | | |
| Dam------------ | --- (No ID) | Favorable | --- | | | | --- | --- |
| | | Normal | --- | | | | | |
| | | Unfavorable | --- | | | | | |
| DrD: | | | | | | | | |
| Durreo---------- | Limy Bench (R051XY276CO) | Favorable | 800 | winterfat | 40 | | --- | --- |
| | | Normal | 600 | Indian ricegrass | 15 | | | |
| | | Unfavorable | 400 | blue grama | 15 | | | |
| | | | | bottlebrush squirreltail | 15 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | rabbitbrush | 5 | | | |

Table 7.--Ecological sites and characteristic native vegetation--continued

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| EaA: | | | | | | | | |
| Eastdale-------- | Salt Meadow (R051XY267CO) | Favorable | 2,500 | alkali sacaton | 30 | | --- | --- |
| | | Normal | 2,000 | alkali cordgrass | 15 | | | |
| | | Unfavorable | 1,500 | western wheatgrass | 15 | | | |
| | | | | Baltic rush | 10 | | | |
| | | | | inland saltgrass | 10 | | | |
| | | | | sedge | 10 | | | |
| | | | | greasewood | 5 | | | |
| | | | | rubber rabbitbrush | 5 | | | |
| FLB: | | | | | | | | |
| Fluvents-------- | Mountain Valley (R048AY003NM) | Favorable | 2,375 | mountain muhly | 30 | | --- | --- |
| | | Normal | 1,710 | Arizona fescue | 20 | | | |
| | | Unfavorable | 1,330 | mountain brome | 20 | | | |
| | | | | western wheatgrass | 10 | | | |
| | | | | Gambel oak | 5 | | | |
| | | | | prairie sagewort | 5 | | | |
| | | | | vetch | 5 | | | |
| | | | | yarrow | 5 | | | |
| FtA: | | | | | | | | |
| Fuertes--------- | Wet Meadow (R051XY315CO) | Favorable | 3,000 | tufted hairgrass | 25 | | --- | --- |
| | | Normal | 2,500 | Nebraska sedge | 15 | | | |
| | | Unfavorable | 2,000 | slender wheatgrass | 15 | | | |
| | | | | western wheatgrass | 15 | | | |
| | | | | bluejoint | 10 | | | |
| | | | | reedgrass | 10 | | | |
| | | | | Baltic rush | 5 | | | |
| | | | | sedge | 5 | | | |
| GmE: | | | | | | | | |
| Aquic Dystrocryepts-- | Alpine Meadow (R048AY305CO) | Favorable | 3,000 | willow | 20 | | --- | --- |
| | | Normal | 2,800 | kobresia | 15 | | | |
| | | Unfavorable | 2,000 | tufted hairgrass | 15 | | | |
| | | | | arctic bluegrass | 7 | | | |
| | | | | alpine clover | 5 | | | |
| | | | | alpine timothy | 5 | | | |
| | | | | other perennial forbs | 5 | | | |
| | | | | sedge | 5 | | | |
| | | | | cinquefoil | 3 | | | |
| | | | | Parry's clover | 3 | | | |
| | | | | shrubby cinquefoil | 2 | | | |

Table 7.--Ecological sites and characteristic native vegetation--continued

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| Gn: | | | | | | | | |
| Angostura------- | Engelmann Spruce-Subalpine Fir, Subalpine Fir - Engelmann Spruce/grouse Whortleberry (abla-Pien/vasc) (No ID) | Favorable | --- | grouse whortleberry | | 30 | Engelmann spruce | 55 |
| | | Normal | --- | bluegrass | | 10 | subalpine fir | 54 |
| | | Unfavorable | --- | nodding brome | | 10 | Rocky Mountain Douglas fir | 50 |
| | | | | Arizona fescue | | 5 | | |
| | | | | common juniper | | 5 | | |
| | | | | Oregongrape | | 5 | | |
| | | | | russet buffaloberry | | 5 | | |
| | | | | Thurber's fescue | | 5 | | |
| | | | | Woods' rose | | 5 | | |
| GP: | | | | | | | | |
| Pits------------ | --- (No ID) | Favorable | --- | | | | --- | --- |
| | | Normal | --- | | | | | |
| | | Unfavorable | --- | | | | | |
| GpA: | | | | | | | | |
| Graypoint------- | Mountain Outwash (R051XY281CO) | Favorable | 800 | blue grama | 20 | | --- | --- |
| | | Normal | 600 | Indian ricegrass | 15 | | | |
| | | Unfavorable | 300 | western wheatgrass | 15 | | | |
| | | | | winterfat | 15 | | | |
| | | | | bottlebrush squirreltail | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | needleandthread | 10 | | | |
| | | | | rabbitbrush | 5 | | | |
| GrA: | | | | | | | | |
| Grayco---------- | Valley Bench (R051XY278CO) | Favorable | 800 | western wheatgrass | 25 | | --- | --- |
| | | Normal | 600 | blue grama | 20 | | | |
| | | Unfavorable | 300 | Wyoming big sagebrush | 15 | | | |
| | | | | needleandthread | 15 | | | |
| | | | | Indian ricegrass | 10 | | | |
| | | | | fourwing saltbush | 5 | | | |
| | | | | sand dropseed | 5 | | | |
| | | | | winterfat | 5 | | | |

Table 7.--Ecological sites and characteristic native vegetation--continued

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| GrC: | | | | | | | | |
| Grayco---------- | Valley Bench (R051XY278CO) | Favorable | 800 | western wheatgrass | 25 | | --- | --- |
| | | Normal | 600 | blue grama | 20 | | | |
| | | Unfavorable | 300 | Wyoming big sagebrush | 15 | | | |
| | | | | needleandthread | 15 | | | |
| | | | | Indian ricegrass | 10 | | | |
| | | | | fourwing saltbush | 5 | | | |
| | | | | sand dropseed | 5 | | | |
| | | | | winterfat | 5 | | | |
| Ho: | | | | | | | | |
| Hooper---------- | Salt Flats (R051XY263CO) | Favorable | 600 | alkali sacaton | 35 | | --- | --- |
| | | Normal | 450 | alkali cordgrass | 20 | | | |
| | | Unfavorable | 300 | blue grama | 10 | | | |
| | | | | greasewood | 10 | | | |
| | | | | rubber rabbitbrush | 10 | | | |
| | | | | western wheatgrass | 10 | | | |
| | | | | fourwing saltbush | 5 | | | |
| Hooper---------- | Salt Flats (R051XY263CO) | Favorable | 1,000 | alkali sacaton | 35 | | --- | --- |
| | | Normal | 750 | alkali cordgrass | 20 | | | |
| | | Unfavorable | 500 | blue grama | 10 | | | |
| | | | | greasewood | 10 | | | |
| | | | | rubber rabbitbrush | 10 | | | |
| | | | | western wheatgrass | 10 | | | |
| | | | | fourwing saltbush | 5 | | | |
| Hp: | | | | | | | | |
| Hooper---------- | Salt Flats (R051XY263CO) | Favorable | 1,000 | alkali sacaton | 35 | | --- | --- |
| | | Normal | 750 | alkali cordgrass | 20 | | | |
| | | Unfavorable | 500 | blue grama | 10 | | | |
| | | | | greasewood | 10 | | | |
| | | | | rubber rabbitbrush | 10 | | | |
| | | | | western wheatgrass | 10 | | | |
| | | | | fourwing saltbush | 5 | | | |
| Hooper---------- | Salt Flats (R051XY263CO) | Favorable | 600 | alkali sacaton | 35 | | --- | --- |
| | | Normal | 450 | alkali cordgrass | 20 | | | |
| | | Unfavorable | 300 | blue grama | 10 | | | |
| | | | | greasewood | 10 | | | |
| | | | | rubber rabbitbrush | 10 | | | |
| | | | | western wheatgrass | 10 | | | |
| | | | | fourwing saltbush | 5 | | | |

Table 7.--Ecological sites and characteristic native vegetation--continued

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| KbA: | | | | | | | | |
| Kibin---------- | Valley Bench (R051XY278CO) | Favorable | 1,200 | western wheatgrass | 25 | | --- | --- |
| | | Normal | 900 | blue grama | 20 | | | |
| | | Unfavorable | 600 | Wyoming big sagebrush | 15 | | | |
| | | | | needleandthread | 15 | | | |
| | | | | Indian ricegrass | 10 | | | |
| | | | | fourwing saltbush | 5 | | | |
| | | | | sand dropseed | 5 | | | |
| | | | | winterfat | 5 | | | |
| KbC: | | | | | | | | |
| Kibin---------- | Valley Bench (R051XY278CO) | Favorable | 1,200 | western wheatgrass | 25 | | --- | --- |
| | | Normal | 900 | blue grama | 20 | | | |
| | | Unfavorable | 600 | Wyoming big sagebrush | 15 | | | |
| | | | | needleandthread | 15 | | | |
| | | | | Indian ricegrass | 10 | | | |
| | | | | fourwing saltbush | 5 | | | |
| | | | | sand dropseed | 5 | | | |
| | | | | winterfat | 5 | | | |
| LbF: | | | | | | | | |
| Lambe---------- | Loamy Park (R048AY222CO) | Favorable | 100 | Junegrass | | | --- | --- |
| | | Normal | 75 | bluegrass | | | | |
| | | Unfavorable | 50 | bottlebrush squirreltail | | | | |
| | | | | fescue | | | | |
| | | | | needlegrass | | | | |
| Woodhall-------- | Subalpine Loam (R048AY250CO) | Favorable | 3,500 | Thurber's fescue | 35 | | --- | --- |
| | | Normal | 2,800 | Parry's oatgrass | 15 | | | |
| | | Unfavorable | 2,000 | mountain big sagebrush | 15 | | | |
| | | | | Columbia needlegrass | 10 | | | |
| | | | | western wheatgrass | 10 | | | |
| | | | | silver sagebrush | 6 | | | |
| | | | | mountain snowberry | 5 | | | |
| | | | | aspen peavine | 2 | | | |
| | | | | geranium | 2 | | | |
| LeF: | | | | | | | | |
| Fallriver------- | Pinus Engelmannii-Abies Lasiocarpa/vaccinium (F048AY013NM) | Favorable | --- | elk sedge | 10 | | Engelmann spruce | --- |
| | | Normal | --- | grouse whortleberry | 10 | | subalpine fir | --- |
| | | Unfavorable | --- | | | | | |

Table 7.--Ecological sites and characteristic native vegetation--continued

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| LeF: | | | | | | | | |
| Rock outcrop---- | --- (No ID) | Favorable | --- | | | | --- | --- |
| | | Normal | --- | | | | | |
| | | Unfavorable | --- | | | | | |
| LH: | | | | | | | | |
| Leadville------- | Pseudotsuga Menziesii-Abies Concolor/quercus Gambelii-Symphoricarpos Albus/festuca Arizonica-Carex Geyeri (F048AY014NM) | Favorable | --- | Arizona fescue | | 10 | Rocky Mountain Douglas fir | 60 |
| | | Normal | --- | boxleaf myrtle | | 10 | subalpine fir | 60 |
| | | Unfavorable | --- | common juniper | | 10 | Engelmann spruce | 50 |
| | | | | elk sedge | | 10 | | |
| | | | | mountain brome | | 10 | | |
| | | | | Woods' rose | | 10 | | |
| | | | | bluegrass | | 5 | | |
| | | | | grouse whortleberry | | 5 | | |
| | | | | muttongrass | | 5 | | |
| | | | | other perennial forbs | | 5 | | |
| | | | | russet buffaloberry | | 5 | | |
| Howlett--------- | Pseudotsuga Menziesii-Abies Concolor/quercus Gambelii-Symphoricarpos Albus/festuca Arizonica-Carex Geyeri (F048AY014NM) | Favorable | --- | Arizona fescue | | 15 | subalpine fir | 60 |
| | | Normal | --- | mountain brome | | 15 | Rocky Mountain Douglas fir | 55 |
| | | Unfavorable | --- | common juniper | | 10 | Engelmann spruce | 50 |
| | | | | elk sedge | | 10 | | |
| | | | | russet buffaloberry | | 10 | | |
| | | | | bluegrass | | 5 | | |
| | | | | boxleaf myrtle | | 5 | | |
| | | | | grouse whortleberry | | 5 | | |
| | | | | Thurber's fescue | | 5 | | |
| | | | | Woods' rose | | 5 | | |
| M: | | | | | | | | |
| Pits------------ | --- (No ID) | Favorable | --- | | | | --- | --- |
| | | Normal | --- | | | | | |
| | | Unfavorable | --- | | | | | |

Table 7.--Ecological sites and characteristic native vegetation--continued

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| McA: | | | | | | | | |
| McGinty--------- | Sandy Bench (R051XY273CO) | Favorable | 1,200 | Indian ricegrass | 30 | | --- | --- |
| | | Normal | 1,000 | blue grama | 20 | | | |
| | | Unfavorable | 800 | needleandthread | 10 | | | |
| | | | | skunkbush | 10 | | | |
| | | | | buckwheat | 5 | | | |
| | | | | fourwing saltbush | 5 | | | |
| | | | | sand dropseed | 5 | | | |
| | | | | scarlet globemallow | 5 | | | |
| | | | | spike dropseed | 5 | | | |
| | | | | western wheatgrass | 5 | | | |
| McB: | | | | | | | | |
| McGinty--------- | Sandy Bench (R051XY273CO) | Favorable | 1,200 | Indian ricegrass | 30 | | --- | --- |
| | | Normal | 1,000 | blue grama | 20 | | | |
| | | Unfavorable | 800 | needleandthread | 10 | | | |
| | | | | skunkbush | 10 | | | |
| | | | | buckwheat | 5 | | | |
| | | | | fourwing saltbush | 5 | | | |
| | | | | sand dropseed | 5 | | | |
| | | | | scarlet globemallow | 5 | | | |
| | | | | spike dropseed | 5 | | | |
| | | | | western wheatgrass | 5 | | | |
| McC: | | | | | | | | |
| McGinty--------- | Sandy Bench (R051XY273CO) | Favorable | 1,200 | Indian ricegrass | 30 | | --- | --- |
| | | Normal | 1,000 | blue grama | 20 | | | |
| | | Unfavorable | 800 | needleandthread | 10 | | | |
| | | | | skunkbush | 10 | | | |
| | | | | buckwheat | 5 | | | |
| | | | | fourwing saltbush | 5 | | | |
| | | | | sand dropseed | 5 | | | |
| | | | | scarlet globemallow | 5 | | | |
| | | | | spike dropseed | 5 | | | |
| | | | | western wheatgrass | 5 | | | |

Table 7.--Ecological sites and characteristic native vegetation--continued

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| MR: | | | | | | | | |
| Mirror---------- | Alpine Slopes (R048AY304CO) | Favorable | 2,000 | kobresia | 30 | | --- | --- |
| | | Normal | 1,400 | other perennial forbs | 15 | | | |
| | | Unfavorable | 900 | tufted hairgrass | 10 | | | |
| | | | | willow | 7 | | | |
| | | | | alpine bluegrass | 5 | | | |
| | | | | purple reedgrass | 5 | | | |
| | | | | sedge | 5 | | | |
| | | | | arctic bluegrass | 3 | | | |
| | | | | spike trisetum | 3 | | | |
| | | | | wheatgrass | 3 | | | |
| | | | | alpine sagebrush | 1 | | | |
| Rock outcrop---- | --- (No ID) | Favorable | --- | | | | --- | --- |
| | | Normal | --- | | | | | |
| | | Unfavorable | --- | | | | | |
| MsA: | | | | | | | | |
| Mosca----------- | Valley Sand (R051XY294CO) | Favorable | 1,000 | Indian ricegrass | 30 | | --- | --- |
| | | Normal | 800 | blue grama | 25 | | | |
| | | Unfavorable | 600 | alkali sacaton | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | western wheatgrass | 10 | | | |
| | | | | greasewood | 5 | | | |
| | | | | needleandthread | 5 | | | |
| | | | | rubber rabbitbrush | 5 | | | |
| MtA: | | | | | | | | |
| Mesita---------- | Salt Flats (R051XY263CO) | Favorable | 1,200 | alkali sacaton | 35 | | --- | --- |
| | | Normal | 900 | alkali cordgrass | 20 | | | |
| | | Unfavorable | 600 | blue grama | 10 | | | |
| | | | | greasewood | 10 | | | |
| | | | | rubber rabbitbrush | 10 | | | |
| | | | | western wheatgrass | 10 | | | |
| | | | | fourwing saltbush | 5 | | | |
| MuC: | | | | | | | | |
| Morval---------- | Foothill Loam (R051XY317CO) | Favorable | 1,600 | western wheatgrass | 40 | | --- | --- |
| | | Normal | 1,200 | needleandthread | 15 | | | |
| | | Unfavorable | 800 | blue grama | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | littleseed ricegrass | 10 | | | |
| | | | | sedge | 10 | | | |
| | | | | rubber rabbitbrush | 5 | | | |

Table 7.--Ecological sites and characteristic native vegetation--continued

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| MuC: | | | | | | | | |
| Uracca---------- | Foothill Loam (R051XY317CO) | Favorable | 1,600 | western wheatgrass | 40 | | --- | --- |
| | | Normal | 1,200 | needleandthread | 15 | | | |
| | | Unfavorable | 800 | blue grama | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | littleseed ricegrass | 10 | | | |
| | | | | sedge | 10 | | | |
| | | | | rubber rabbitbrush | 5 | | | |
| MuE: | | | | | | | | |
| Morval---------- | Foothill Loam (R051XY317CO) | Favorable | 1,600 | western wheatgrass | 40 | | --- | --- |
| | | Normal | 1,200 | needleandthread | 15 | | | |
| | | Unfavorable | 800 | blue grama | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | littleseed ricegrass | 10 | | | |
| | | | | sedge | 10 | | | |
| | | | | rubber rabbitbrush | 5 | | | |
| Uracca---------- | Foothill Loam (R051XY317CO) | Favorable | 1,600 | western wheatgrass | 40 | | --- | --- |
| | | Normal | 1,200 | needleandthread | 15 | | | |
| | | Unfavorable | 800 | blue grama | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | littleseed ricegrass | 10 | | | |
| | | | | sedge | 10 | | | |
| | | | | rubber rabbitbrush | 5 | | | |
| PtC: | | | | | | | | |
| Potrio---------- | Foothills (R051XY283CO) | Favorable | 1,500 | western wheatgrass | 35 | | --- | --- |
| | | Normal | 1,100 | needleandthread | 20 | | | |
| | | Unfavorable | 750 | Wyoming big sagebrush | 10 | | | |
| | | | | blue grama | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | mountain muhly | 10 | | | |
| | | | | winterfat | 5 | | | |
| RF: | | | | | | | | |
| Rock outcrop---- | --- (No ID) | Favorable | --- | | | | --- | --- |
| | | Normal | --- | | | | | |
| | | Unfavorable | --- | | | | | |
| Rubble land----- | --- (No ID) | Favorable | --- | | | | --- | --- |
| | | Normal | --- | | | | | |
| | | Unfavorable | --- | | | | | |

Table 7.--Ecological sites and characteristic native vegetation--continued

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| RrA: | | | | | | | | |
| Trinchera------- | Valley Bench (R051XY278CO) | Favorable | 1,200 | western wheatgrass | 35 | | --- | --- |
| | | Normal | 900 | needleandthread | 20 | | | |
| | | Unfavorable | 600 | Wyoming big sagebrush | 10 | | | |
| | | | | blue grama | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | muhly | 10 | | | |
| | | | | winterfat | 5 | | | |
| RrB: | | | | | | | | |
| Trinchera------- | Valley Bench (R051XY278CO) | Favorable | 1,200 | western wheatgrass | 35 | | --- | --- |
| | | Normal | 900 | needleandthread | 20 | | | |
| | | Unfavorable | 600 | Wyoming big sagebrush | 10 | | | |
| | | | | blue grama | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | muhly | 10 | | | |
| | | | | winterfat | 5 | | | |
| RrD: | | | | | | | | |
| Trinchera------- | Valley Bench (R051XY278CO) | Favorable | 1,200 | western wheatgrass | 35 | | --- | --- |
| | | Normal | 900 | needleandthread | 20 | | | |
| | | Unfavorable | 600 | Wyoming big sagebrush | 10 | | | |
| | | | | blue grama | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | muhly | 10 | | | |
| | | | | winterfat | 5 | | | |
| ShA: | | | | | | | | |
| Shawa----------- | Foothill Loam (R051XY317CO) | Favorable | 1,600 | western wheatgrass | 40 | | --- | --- |
| | | Normal | 1,200 | needleandthread | 15 | | | |
| | | Unfavorable | 800 | blue grama | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | littleseed ricegrass | 10 | | | |
| | | | | sedge | 10 | | | |
| | | | | rubber rabbitbrush | 5 | | | |
| ShC: | | | | | | | | |
| Shawa----------- | Foothill Loam (R051XY317CO) | Favorable | 1,600 | western wheatgrass | 40 | | --- | --- |
| | | Normal | 1,200 | needleandthread | 15 | | | |
| | | Unfavorable | 800 | blue grama | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | littleseed ricegrass | 10 | | | |
| | | | | sedge | 10 | | | |
| | | | | rubber rabbitbrush | 5 | | | |

Table 7.--Ecological sites and characteristic native vegetation--continued

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| SL: | | | | | | | | |
| Scandard-------- | Pseudotsuga Menziesii-Abies Concolor/quercus Gambelii-Symphoricarpos Albus/festuca Arizonica-Carex Geyeri (F048AY014NM) | Favorable | --- | mountain muhly | | 20 | Rocky Mountain Douglas fir | 50 |
| | | Normal | --- | Arizona fescue | | 15 | white fir | 30 |
| | | Unfavorable | --- | mountain brome | | 15 | | |
| | | | | Parry's danthonia | | 10 | | |
| | | | | common juniper | | 5 | | |
| | | | | fringed sagewort | | 5 | | |
| | | | | Gambel oak | | 5 | | |
| | | | | kinnikinnick | | 5 | | |
| | | | | Oregongrape | | 5 | | |
| Leadville------- | Pseudotsuga Menziesii-Abies Concolor/quercus Gambelii-Symphoricarpos Albus/festuca Arizonica-Carex Geyeri (F048AY014NM) | Favorable | --- | Arizona fescue | | 15 | Rocky Mountain Douglas fir | 60 |
| | | Normal | --- | common juniper | | 10 | Engelmann spruce | 50 |
| | | Unfavorable | --- | elk sedge | | 10 | white fir | 42 |
| | | | | mountain brome | | 10 | | |
| | | | | bluegrass | | 5 | | |
| | | | | boxleaf myrtle | | 5 | | |
| | | | | grouse whortleberry | | 5 | | |
| | | | | kinnikinnick | | 5 | | |
| | | | | muttongrass | | 5 | | |
| | | | | russet buffaloberry | | 5 | | |
| | | | | Woods' rose | | 5 | | |
| Rock outcrop---- | --- (No ID) | Favorable | --- | | | | --- | --- |
| | | Normal | --- | | | | | |
| | | Unfavorable | --- | | | | | |
| SpD: | | | | | | | | |
| Sanpedro-------- | Basalt Hills (R048AY277CO) | Favorable | 700 | Indian ricegrass | 40 | | --- | --- |
| | | Normal | 500 | blue grama | 20 | | | |
| | | Unfavorable | 300 | rabbitbrush | 15 | | | |
| | | | | Wyoming big sagebrush | 10 | | | |
| | | | | spike dropseed | 10 | | | |
| | | | | western wheatgrass | 5 | | | |
| Potrio---------- | Foothills (R051XY283CO) | Favorable | 1,500 | western wheatgrass | 35 | | --- | --- |
| | | Normal | 1,100 | needleandthread | 20 | | | |
| | | Unfavorable | 750 | Wyoming big sagebrush | 10 | | | |
| | | | | blue grama | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | mountain muhly | 10 | | | |
| | | | | winterfat | 5 | | | |

Table 7.--Ecological sites and characteristic native vegetation--continued

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| SpD: | | | | | | | | |
| Rock outcrop---- | --- (No ID) | Favorable | --- | | | | --- | --- |
| | | Normal | --- | | | | | |
| | | Unfavorable | --- | | | | | |
| SpF: | | | | | | | | |
| Sanpedro-------- | Basalt Hills (R048AY277CO) | Favorable | 700 | Indian ricegrass | 40 | | --- | --- |
| | | Normal | 500 | blue grama | 20 | | | |
| | | Unfavorable | 300 | rabbitbrush | 15 | | | |
| | | | | Wyoming big sagebrush | 10 | | | |
| | | | | spike dropseed | 10 | | | |
| | | | | western wheatgrass | 5 | | | |
| Potrio---------- | Foothills (R051XY283CO) | Favorable | 1,500 | western wheatgrass | 35 | | --- | --- |
| | | Normal | 1,100 | needleandthread | 20 | | | |
| | | Unfavorable | 750 | Wyoming big sagebrush | 10 | | | |
| | | | | blue grama | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | mountain muhly | 10 | | | |
| | | | | winterfat | 5 | | | |
| Rock outcrop---- | --- (No ID) | Favorable | --- | | | | --- | --- |
| | | Normal | --- | | | | | |
| | | Unfavorable | --- | | | | | |
| StB: | | | | | | | | |
| Stunner--------- | Valley Bench (R051XY278CO) | Favorable | 1,200 | western wheatgrass | 25 | | --- | --- |
| | | Normal | 900 | blue grama | 20 | | | |
| | | Unfavorable | 600 | Wyoming big sagebrush | 15 | | | |
| | | | | needleandthread | 15 | | | |
| | | | | Indian ricegrass | 10 | | | |
| | | | | fourwing saltbush | 5 | | | |
| | | | | sand dropseed | 5 | | | |
| | | | | winterfat | 5 | | | |
| StC: | | | | | | | | |
| Stunner--------- | Valley Bench (R051XY278CO) | Favorable | 1,200 | western wheatgrass | 25 | | --- | --- |
| | | Normal | 900 | blue grama | 20 | | | |
| | | Unfavorable | 600 | Wyoming big sagebrush | 15 | | | |
| | | | | needleandthread | 15 | | | |
| | | | | Indian ricegrass | 10 | | | |
| | | | | fourwing saltbush | 5 | | | |
| | | | | sand dropseed | 5 | | | |
| | | | | winterfat | 5 | | | |

Table 7.--Ecological sites and characteristic native vegetation--continued

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| SzF: | | | | | | | | |
| Seitz---------- | Mixed Conifer (R048AY908CO) | Favorable | 100 | Arizona fescue | 15 | | Rocky Mountain Douglas-fir | 48 |
| | | Normal | 75 | mountain brome | 10 | | juniper | --- |
| | | Unfavorable | 50 | snowberry | 5 | | ponderosa pine | --- |
| | | | | | | | subalpine fir | --- |
| | | | | | | | white fir | --- |
| Tolvar---------- | Aspen Woodland (R048AY449CO) | Favorable | --- | Columbia needlegrass | 15 | | quaking aspen | --- |
| | | Normal | --- | mountain brome | 15 | | | |
| | | Unfavorable | --- | slender wheatgrass | 15 | | | |
| | | | | Arizona fescue | 10 | | | |
| | | | | elk sedge | 10 | | | |
| | | | | Letterman's needlegrass | 5 | | | |
| | | | | blue wildrye | 5 | | | |
| | | | | fleabane | 5 | | | |
| | | | | mountain snowberry | 5 | | | |
| TlD: | | | | | | | | |
| Tolvar---------- | Aspen Woodland (R048AY449CO) | Favorable | 2,600 | Columbia needlegrass | 15 | | quaking aspen | --- |
| | | Normal | 2,200 | mountain brome | 15 | | | |
| | | Unfavorable | 1,800 | slender wheatgrass | 15 | | | |
| | | | | Arizona fescue | 10 | | | |
| | | | | elk sedge | 10 | | | |
| | | | | Letterman's needlegrass | 5 | | | |
| | | | | blue wildrye | 5 | | | |
| | | | | fleabane | 5 | | | |
| | | | | mountain snowberry | 5 | | | |
| Laveta---------- | Mixed Conifer (R048AY908CO) | Favorable | 300 | Arizona fescue | 15 | | Rocky Mountain Douglas-fir | --- |
| | | Normal | 250 | Parry's oatgrass | 15 | | ponderosa pine | --- |
| | | Unfavorable | 200 | mountain brome | 10 | | subalpine fir | --- |
| | | | | common juniper | 5 | | white fir | --- |
| | | | | snowberry | 5 | | | |
| TlF: | | | | | | | | |
| Tolvar---------- | Aspen Woodland (R048AY449CO) | Favorable | 2,600 | Columbia needlegrass | 15 | | quaking aspen | --- |
| | | Normal | 2,200 | mountain brome | 15 | | | |
| | | Unfavorable | 1,800 | slender wheatgrass | 15 | | | |
| | | | | Arizona fescue | 10 | | | |
| | | | | elk sedge | 10 | | | |
| | | | | Letterman's needlegrass | 5 | | | |
| | | | | blue wildrye | 5 | | | |
| | | | | fleabane | 5 | | | |
| | | | | mountain snowberry | 5 | | | |

Table 7.--Ecological sites and characteristic native vegetation--continued

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| TlF: | | | | | | | | |
| Laveta---------- | Mixed Conifer (R048AY908CO) | Favorable | 300 | Arizona fescue | 15 | | Rocky Mountain Douglas-fir | --- |
| | | Normal | 250 | mountain brome | 10 | | ponderosa pine | --- |
| | | Unfavorable | 200 | common juniper | 5 | | subalpine fir | --- |
| | | | | snowberry | 5 | | white fir | --- |
| | | | | Parry's oatgrass | | | | |
| Rock outcrop---- | --- (No ID) | Favorable | --- | | | | --- | --- |
| | | Normal | --- | | | | | |
| | | Unfavorable | --- | | | | | |
| ToF: | | | | | | | | |
| Tolvar---------- | Aspen Woodland (R048AY449CO) | Favorable | 2,600 | Columbia needlegrass | 15 | | quaking aspen | --- |
| | | Normal | 2,200 | mountain brome | 15 | | | |
| | | Unfavorable | 1,800 | slender wheatgrass | 15 | | | |
| | | | | Arizona fescue | 10 | | | |
| | | | | elk sedge | 10 | | | |
| | | | | Letterman's needlegrass | 5 | | | |
| | | | | blue wildrye | 5 | | | |
| | | | | fleabane | 5 | | | |
| | | | | mountain snowberry | 5 | | | |
| TvD: | | | | | | | | |
| Travelers------- | Basalt Hill (R051XY277CO) | Favorable | 700 | Indian ricegrass | 40 | | --- | --- |
| | | Normal | 500 | blue grama | 20 | | | |
| | | Unfavorable | 300 | green rabbitbrush | 15 | | | |
| | | | | Wyoming big sagebrush | 10 | | | |
| | | | | spike dropseed | 10 | | | |
| | | | | western wheatgrass | 5 | | | |
| Rock outcrop---- | --- (No ID) | Favorable | --- | | | | --- | --- |
| | | Normal | --- | | | | | |
| | | Unfavorable | --- | | | | | |
| TvF: | | | | | | | | |
| Travelers------- | Basalt Hill (R051XY277CO) | Favorable | 700 | Indian ricegrass | 40 | | --- | --- |
| | | Normal | 500 | blue grama | 20 | | | |
| | | Unfavorable | 300 | green rabbitbrush | 15 | | | |
| | | | | Wyoming big sagebrush | 10 | | | |
| | | | | spike dropseed | 10 | | | |
| | | | | western wheatgrass | 5 | | | |

Table 7.--Ecological sites and characteristic native vegetation--continued

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| TvF: | | | | | | | | |
| Rock outcrop---- | --- (No ID) | Favorable | --- | | | | --- | --- |
| | | Normal | --- | | | | | |
| | | Unfavorable | --- | | | | | |
| UmF: | | | | | | | | |
| Uracca---------- | Foothill Loam (R051XY317CO) | Favorable | 1,600 | western wheatgrass | 40 | | --- | --- |
| | | Normal | 1,200 | needleandthread | 15 | | | |
| | | Unfavorable | 800 | blue grama | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | littleseed ricegrass | 10 | | | |
| | | | | sedge | 10 | | | |
| | | | | rubber rabbitbrush | 5 | | | |
| Morval---------- | Foothill Loam (R051XY317CO) | Favorable | 1,600 | western wheatgrass | 40 | | --- | --- |
| | | Normal | 1,200 | needleandthread | 15 | | | |
| | | Unfavorable | 800 | blue grama | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | littleseed ricegrass | 10 | | | |
| | | | | sedge | 10 | | | |
| | | | | rubber rabbitbrush | 5 | | | |
| UrF: | | | | | | | | |
| Uracca---------- | Foothill Loam (R051XY317CO) | Favorable | 1,600 | western wheatgrass | 40 | | --- | --- |
| | | Normal | 1,200 | needleandthread | 15 | | | |
| | | Unfavorable | 800 | blue grama | 10 | | | |
| | | | | fourwing saltbush | 10 | | | |
| | | | | littleseed ricegrass | 10 | | | |
| | | | | sedge | 10 | | | |
| | | | | rubber rabbitbrush | 5 | | | |
| Culebra--------- | Pinus Edulis-Juniperus Monosperma/quercus Gambelii (F048AY015NM) | Favorable | 1,600 | blue grama | 10 | | Rocky Mountain juniper | --- |
| | | Normal | 1,200 | mountain mahogany | 10 | | twoneedle pinyon | --- |
| | | Unfavorable | 800 | slimstem muhly | 10 | | | |
| | | | | wax currant | 10 | | | |
| | | | | scarlet gilia | 5 | | | |
| | | | | sulphur-flower buckwheat | 5 | | | |

Table 7.--Ecological sites and characteristic native vegetation--continued

| Map symbol and soil name | Ecological site (Site ID) | Total production | | Characteristic native vegetation | Composition | | Common trees | Site index |
|---|---|---|---|---|---|---|---|---|
| | | Kind of year | Dry weight | | Range-land | Forest | | |
| | | | Lb/acre | | Pct. | Pct. | | |
| VeA: | | | | | | | | |
| Ventero--------- | Wet Meadow (R051XY315CO) | Favorable | 3,000 | tufted hairgrass | 25 | | --- | --- |
| | | Normal | 2,500 | Nebraska sedge | 15 | | | |
| | | Unfavorable | 2,000 | slender wheatgrass | 15 | | | |
| | | | | western wheatgrass | 15 | | | |
| | | | | bluejoint | 10 | | | |
| | | | | reedgrass | 10 | | | |
| | | | | Baltic rush | 5 | | | |
| | | | | sedge | 5 | | | |
| VgA: | | | | | | | | |
| Vastine--------- | Wet Meadow (R051XY315CO) | Favorable | 3,000 | tufted hairgrass | 25 | | --- | --- |
| | | Normal | 2,500 | Nebraska sedge | 15 | | | |
| | | Unfavorable | 2,000 | slender wheatgrass | 15 | | | |
| | | | | western wheatgrass | 15 | | | |
| | | | | bluejoint | 10 | | | |
| | | | | reedgrass | 10 | | | |
| | | | | Baltic rush | 5 | | | |
| | | | | sedge | 5 | | | |
| Gerrard--------- | Wet Meadow (R051XY315CO) | Favorable | 3,000 | tufted hairgrass | 25 | | --- | --- |
| | | Normal | 2,500 | Nebraska sedge | 15 | | | |
| | | Unfavorable | 2,000 | slender wheatgrass | 15 | | | |
| | | | | western wheatgrass | 15 | | | |
| | | | | bluejoint | 10 | | | |
| | | | | reedgrass | 10 | | | |
| | | | | Baltic rush | 5 | | | |
| | | | | sedge | 5 | | | |
| W: | | | | | | | | |
| Water----------- | --- (No ID) | Favorable | --- | | | | --- | --- |
| | | Normal | --- | | | | | |
| | | Unfavorable | --- | | | | | |

Table 8.--Haul roads, log landings, and soil rutting on forestland

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

| Map symbol and soil name | Pct. of map unit | Limitations affecting construction of haul roads and log landings | | Suitability for log landings | | Soil rutting hazard | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| AmC: | | | | | | | |
| Amalia | 85 | Moderate | | Moderately suited | | Slight | |
| | | Sandiness | 0.50 | Slope | 0.50 | Strength | 0.10 |
| | | Landslides | 0.03 | Landslides | 0.03 | | |
| AmE: | | | | | | | |
| Amalia | 85 | Moderate | | Poorly suited | | Moderate | |
| | | Slope | 0.50 | Slope | 1.00 | Low strength | 0.50 |
| | | Sandiness | 0.50 | Landslides | 0.45 | | |
| | | Landslides | 0.45 | | | | |
| Aq: | | | | | | | |
| Cumulic Cryaquolls | 85 | Severe | | Poorly suited | | Severe | |
| | | Flooding | 1.00 | Ponding | 1.00 | Low strength | 1.00 |
| | | Low strength | 0.50 | Flooding | 1.00 | | |
| | | Sandiness | 0.50 | Low strength | 0.50 | | |
| BfA: | | | | | | | |
| Blanfort | 85 | Slight | | Well suited | | Moderate | |
| | | | | | | Low strength | 0.50 |

Table 8.--Haul roads, log landings, and soil rutting on forestland--continued

| Map symbol and soil name | Pct. of map unit | Limitations affecting construction of haul roads and log landings | | Suitability for log landings | | Soil rutting hazard | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| BfD: | | | | | | | |
| Blanfort | 85 | Slight | | Moderately suited | | Moderate | |
| | | Landslides | 0.01 | Slope | 0.50 | Low strength | 0.50 |
| | | | | Landslides | 0.01 | | |
| CsA: | | | | | | | |
| Cososa | 85 | Moderate | | Well suited | | Moderate | |
| | | Sandiness | 0.50 | | | Low strength | 0.50 |
| CsD: | | | | | | | |
| Cososa | 85 | Moderate | | Moderately suited | | Moderate | |
| | | Sandiness | 0.50 | Slope | 0.50 | Low strength | 0.50 |
| | | Landslides | 0.03 | Landslides | 0.03 | | |
| CtA: | | | | | | | |
| Costilla | 85 | Slight | | Well suited | | Moderate | |
| | | | | | | Low strength | 0.50 |
| CuF: | | | | | | | |
| Comodore | 50 | Severe | | Poorly suited | | Slight | |
| | | Slope | 1.00 | Slope | 1.00 | Strength | 0.10 |
| | | Landslides | 0.60 | Landslides | 0.60 | | |
| | | | | Rock fragments | 0.50 | | |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |

Table 8.--Haul roads, log landings, and soil rutting on forestland--continued

| Map symbol and soil name | Pct. of map unit | Limitations affecting construction of haul roads and log landings | | Suitability for log landings | | Soil rutting hazard | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| CuF: | | | | | | | |
| Uracca | 20 | Severe | | Poorly suited | | Moderate | |
| | | Slope | 1.00 | Slope | 1.00 | Low strength | 0.50 |
| | | Landslides | 0.60 | Landslides | 0.60 | | |
| | | | | Rock fragments | 0.50 | | |
| DAM: | | | | | | | |
| Dam | 100 | Not rated | | Not rated | | Not rated | |
| DrD: | | | | | | | |
| Durreo | 85 | Slight | | Well suited | | Moderate | |
| | | | | | | Low strength | 0.50 |
| EaA: | | | | | | | |
| Eastdale | 85 | Moderate | | Moderately suited | | Severe | |
| | | Flooding | 0.50 | Ponding | 0.50 | Low strength | 1.00 |
| | | Low strength | 0.50 | Flooding | 0.50 | | |
| | | | | Low strength | 0.50 | | |
| FLB: | | | | | | | |
| Fluvents | 80 | Severe | | Poorly suited | | Slight | |
| | | Flooding | 1.00 | Flooding | 1.00 | Strength | 0.10 |
| | | Wetness | 0.50 | Wetness | 0.50 | | |
| | | Sandiness | 0.50 | Sandiness | 0.50 | | |
| FtA: | | | | | | | |
| Fuertes | 85 | Slight | | Well suited | | Moderate | |
| | | | | | | Low strength | 0.50 |

Table 8.--Haul roads, log landings, and soil rutting on forestland--continued

| Map symbol and soil name | Pct. of map unit | Limitations affecting construction of haul roads and log landings | | Suitability for log landings | | Soil rutting hazard | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| GmE: | | | | | | | |
| Aquic Dystrocryepts- | 90 | Moderate | | Poorly suited | | Moderate | |
| | | Slope | 0.50 | Slope | 1.00 | Low strength | 0.50 |
| | | | | Rock fragments | 0.50 | | |
| Gn: | | | | | | | |
| Angostura | 90 | Severe | | Poorly suited | | Slight | |
| | | Slope | 1.00 | Slope | 1.00 | Strength | 0.10 |
| | | Stoniness | 0.50 | Rock fragments | 0.50 | | |
| GP: | | | | | | | |
| Pits, gravel | 100 | Not rated | | Not rated | | Not rated | |
| GpA: | | | | | | | |
| Graypoint | 85 | Moderate | | Well suited | | Moderate | |
| | | Low strength | 0.50 | | | Low strength | 0.50 |
| | | Sandiness | 0.50 | | | | |
| GrA: | | | | | | | |
| Grayco | 85 | Moderate | | Well suited | | Moderate | |
| | | Sandiness | 0.50 | | | Low strength | 0.50 |
| GrC: | | | | | | | |
| Grayco | 85 | Moderate | | Well suited | | Moderate | |
| | | Sandiness | 0.50 | | | Low strength | 0.50 |
| Ho: | | | | | | | |
| Hooper, loamy sand | 70 | Slight | | Well suited | | Moderate | |
| | | | | | | Low strength | 0.50 |

Table 8.--Haul roads, log landings, and soil rutting on forestland--continued

| Map symbol and soil name | Pct. of map unit | Limitations affecting construction of haul roads and log landings | | Suitability for log landings | | Soil rutting hazard | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| Ho: | | | | | | | |
| Hooper, clay loam--- | 20 | Moderate | | Poorly suited | | Severe | |
| | | Low strength | 0.50 | Ponding | 1.00 | Low strength | 1.00 |
| | | Sandiness | 0.50 | Low strength | 0.50 | | |
| Hp: | | | | | | | |
| Hooper, clay loam--- | 65 | Moderate | | Poorly suited | | Severe | |
| | | Low strength | 0.50 | Ponding | 1.00 | Low strength | 1.00 |
| | | Sandiness | 0.50 | Low strength | 0.50 | | |
| Hooper, loamy sand-- | 30 | Slight | | Well suited | | Moderate | |
| | | | | | | Low strength | 0.50 |
| KbA: | | | | | | | |
| Kibin--- | 85 | Slight | | Well suited | | Moderate | |
| | | | | | | Low strength | 0.50 |
| KbC: | | | | | | | |
| Kibin--- | 85 | Slight | | Well suited | | Moderate | |
| | | | | | | Low strength | 0.50 |
| LbF: | | | | | | | |
| Lambe--- | 60 | Severe | | Poorly suited | | Moderate | |
| | | Slope | 1.00 | Slope | 1.00 | Low strength | 0.50 |
| | | Landslides | 0.60 | Landslides | 0.60 | | |
| Woodhall--- | 30 | Moderate | | Poorly suited | | Slight | |
| | | Restrictive layer | 0.50 | Slope | 1.00 | Strength | 0.10 |
| | | Landslides | 0.27 | Landslides | 0.27 | | |

Table 8.--Haul roads, log landings, and soil rutting on forestland--continued

| Map symbol and soil name | Pct. of map unit | Limitations affecting construction of haul roads and log landings | | Suitability for log landings | | Soil rutting hazard | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| LeF: | | | | | | | |
| Fallriver | 65 | Severe | | Poorly suited | | Slight | |
| | | Slope | 1.00 | Slope | 1.00 | Strength | 0.10 |
| | | Landslides | 0.60 | Landslides | 0.60 | | |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| LH: | | | | | | | |
| Leadville | 60 | Moderate | | Poorly suited | | Moderate | |
| | | Slope | 0.50 | Slope | 1.00 | Low strength | 0.50 |
| Howlett | 30 | Moderate | | Poorly suited | | Moderate | |
| | | Slope | 0.50 | Slope | 1.00 | Low strength | 0.50 |
| M: | | | | | | | |
| Pits, mine | 100 | Not rated | | Not rated | | Not rated | |
| McA: | | | | | | | |
| McGinty | 85 | Slight | | Well suited | | Moderate | |
| | | | | | | Low strength | 0.50 |
| McB: | | | | | | | |
| McGinty | 85 | Slight | | Well suited | | Moderate | |
| | | | | | | Low strength | 0.50 |
| McC: | | | | | | | |
| McGinty | 85 | Slight | | Well suited | | Moderate | |
| | | | | | | Low strength | 0.50 |

Table 8.--Haul roads, log landings, and soil rutting on forestland--continued

| Map symbol and soil name | Pct. of map unit | Limitations affecting construction of haul roads and log landings | | Suitability for log landings | | Soil rutting hazard | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| MR: | | | | | | | |
| Mirror | 70 | Severe | | Poorly suited | | Slight | |
| | | Slope | 1.00 | Slope | 1.00 | Strength | 0.10 |
| | | Stoniness | 0.50 | Rock fragments | 0.50 | | |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| MsA: | | | | | | | |
| Mosca | 85 | Slight | | Well suited | | Moderate | |
| | | | | | | Low strength | 0.50 |
| MtA: | | | | | | | |
| Mesita | 85 | Moderate | | Moderately suited | | Severe | |
| | | Flooding | 0.50 | Ponding | 0.50 | Low strength | 1.00 |
| | | Low strength | 0.50 | Flooding | 0.50 | | |
| | | | | Low strength | 0.50 | | |
| MuC: | | | | | | | |
| Morval | 65 | Slight | | Moderately suited | | Moderate | |
| | | Landslides | 0.03 | Slope | 0.50 | Low strength | 0.50 |
| | | | | Landslides | 0.03 | | |
| Uracca | 20 | Moderate | | Moderately suited | | Moderate | |
| | | Sandiness | 0.50 | Rock fragments | 0.50 | Low strength | 0.50 |
| | | Landslides | 0.03 | Slope | 0.50 | | |
| | | | | Landslides | 0.03 | | |

Table 8.--Haul roads, log landings, and soil rutting on forestland--continued

| Map symbol and soil name | Pct. of map unit | Limitations affecting construction of haul roads and log landings | | Suitability for log landings | | Soil rutting hazard | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| MuE: | | | | | | | |
| Morval | 60 | Moderate | | Poorly suited | | Moderate | |
| | | Slope | 0.50 | Slope | 1.00 | Low strength | 0.50 |
| | | Landslides | 0.45 | Landslides | 0.45 | | |
| Uracca | 20 | Severe | | Poorly suited | | Moderate | |
| | | Slope | 1.00 | Slope | 1.00 | Low strength | 0.50 |
| | | Landslides | 0.60 | Landslides | 0.60 | | |
| | | | | Rock fragments | 0.50 | | |
| PtC: | | | | | | | |
| Potrio | 85 | Moderate | | Moderately suited | | Severe | |
| | | Low strength | 0.50 | Low strength | 0.50 | Low strength | 1.00 |
| RF: | | | | | | | |
| Rock outcrop | 50 | Not rated | | Not rated | | Not rated | |
| Rubble land | 50 | Not rated | | Not rated | | Not rated | |
| RrA: | | | | | | | |
| Trinchera | 85 | Moderate | | Well suited | | Moderate | |
| | | Low strength | 0.50 | | | Low strength | 0.50 |
| RrB: | | | | | | | |
| Trinchera | 85 | Moderate | | Well suited | | Moderate | |
| | | Low strength | 0.50 | | | Low strength | 0.50 |

Table 8.--Haul roads, log landings, and soil rutting on forestland--continued

| Map symbol and soil name | Pct. of map unit | Limitations affecting construction of haul roads and log landings | | Suitability for log landings | | Soil rutting hazard | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| RrD: | | | | | | | |
| Trinchera | 85 | Moderate | | Moderately suited | | Moderate | |
| | | Low strength | 0.50 | Slope | 0.50 | Low strength | 0.50 |
| | | Landslides | 0.03 | Landslides | 0.03 | | |
| ShA: | | | | | | | |
| Shawa | 85 | Slight | | Well suited | | Moderate | |
| | | | | | | Low strength | 0.50 |
| ShC: | | | | | | | |
| Shawa | 85 | Slight | | Moderately suited | | Moderate | |
| | | Landslides | 0.06 | Slope | 0.50 | Low strength | 0.50 |
| | | | | Landslides | 0.06 | | |
| SL: | | | | | | | |
| Scandard | 45 | Severe | | Poorly suited | | Slight | |
| | | Slope | 1.00 | Slope | 1.00 | Strength | 0.10 |
| | | Stoniness | 0.50 | Rock fragments | 0.50 | | |
| Leadville | 30 | Severe | | Poorly suited | | Moderate | |
| | | Slope | 1.00 | Slope | 1.00 | Low strength | 0.50 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| SpD: | | | | | | | |
| Sanpedro | 50 | Severe | | Moderately suited | | Slight | |
| | | Restrictive layer | 1.00 | Slope | 0.50 | Strength | 0.10 |
| | | Landslides | 0.05 | Landslides | 0.05 | | |

Table 8.--Haul roads, log landings, and soil rutting on forestland--continued

| Map symbol and soil name | Pct. of map unit | Limitations affecting construction of haul roads and log landings | | Suitability for log landings | | Soil rutting hazard | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SpD: | | | | | | | |
| Potrio | 35 | Moderate | | Moderately suited | | Severe | |
| | | Low strength | 0.50 | Low strength | 0.50 | Low strength | 1.00 |
| | | Landslides | 0.05 | Slope | 0.50 | | |
| | | | | Landslides | 0.05 | | |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| SpF: | | | | | | | |
| Sanpedro | 50 | Severe | | Poorly suited | | Slight | |
| | | Landslides | 1.00 | Slope | 1.00 | Strength | 0.10 |
| | | Slope | 1.00 | Landslides | 1.00 | | |
| Potrio | 30 | Moderate | | Poorly suited | | Severe | |
| | | Landslides | 0.50 | Slope | 1.00 | Low strength | 1.00 |
| | | Slope | 0.50 | Landslides | 0.50 | | |
| | | Restrictive layer | 0.50 | Low strength | 0.50 | | |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| StB: | | | | | | | |
| Stunner | 85 | Moderate | | Moderately suited | | Severe | |
| | | Low strength | 0.50 | Low strength | 0.50 | Low strength | 1.00 |
| StC: | | | | | | | |
| Stunner | 85 | Moderate | | Moderately suited | | Severe | |
| | | Low strength | 0.50 | Low strength | 0.50 | Low strength | 1.00 |

Table 8.--Haul roads, log landings, and soil rutting on forestland--continued

| Map symbol and soil name | Pct. of map unit | Limitations affecting construction of haul roads and log landings | | Suitability for log landings | | Soil rutting hazard | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SzF: | | | | | | | |
| Seitz | 60 | Severe | | Poorly suited | | Moderate | |
| | | Slope | 1.00 | Slope | 1.00 | Low strength | 0.50 |
| | | Landslides | 0.60 | Landslides | 0.60 | | |
| Tolvar | 20 | Severe | | Poorly suited | | Slight | |
| | | Slope | 1.00 | Slope | 1.00 | Strength | 0.10 |
| | | Landslides | 0.60 | Landslides | 0.60 | | |
| | | Stoniness | 0.50 | Rock fragments | 0.50 | | |
| TlD: | | | | | | | |
| Tolvar | 65 | Moderate | | Moderately suited | | Slight | |
| | | Sandiness | 0.50 | Rock fragments | 0.50 | Strength | 0.10 |
| | | Stoniness | 0.50 | Slope | 0.50 | | |
| | | Landslides | 0.03 | Landslides | 0.03 | | |
| Laveta | 25 | Moderate | | Moderately suited | | Moderate | |
| | | Restrictive layer | 0.50 | Slope | 0.50 | Low strength | 0.50 |
| | | Landslides | 0.03 | Landslides | 0.03 | | |
| TlF: | | | | | | | |
| Tolvar | 45 | Severe | | Poorly suited | | Slight | |
| | | Slope | 1.00 | Slope | 1.00 | Strength | 0.10 |
| | | Landslides | 0.60 | Landslides | 0.60 | | |
| | | Stoniness | 0.50 | Rock fragments | 0.50 | | |

Table 8.--Haul roads, log landings, and soil rutting on forestland--continued

| Map symbol and soil name | Pct. of map unit | Limitations affecting construction of haul roads and log landings | | Suitability for log landings | | Soil rutting hazard | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| TlF: | | | | | | | |
| Laveta | 30 | Severe | | Poorly suited | | Moderate | |
| | | Restrictive layer | 1.00 | Slope | 1.00 | Low strength | 0.50 |
| | | Slope | 0.50 | Landslides | 0.10 | | |
| | | Landslides | 0.10 | | | | |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| ToF: | | | | | | | |
| Tolvar | 85 | Severe | | Poorly suited | | Slight | |
| | | Slope | 1.00 | Slope | 1.00 | Strength | 0.10 |
| | | Landslides | 0.60 | Landslides | 0.60 | | |
| | | Stoniness | 0.50 | Rock fragments | 0.50 | | |
| TvD: | | | | | | | |
| Travelers | 70 | Severe | | Well suited | | Moderate | |
| | | Stoniness | 1.00 | | | Low strength | 0.50 |
| | | Restrictive layer | 1.00 | | | | |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| TvF: | | | | | | | |
| Travelers | 70 | Severe | | Poorly suited | | Moderate | |
| | | Restrictive layer | 1.00 | Slope | 1.00 | Low strength | 0.50 |
| | | Landslides | 0.75 | Landslides | 0.75 | | |
| | | Slope | 0.50 | | | | |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |

Table 8.--Haul roads, log landings, and soil rutting on forestland--continued

| Map symbol and soil name | Pct. of map unit | Limitations affecting construction of haul roads and log landings | | Suitability for log landings | | Soil rutting hazard | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| UmF: | | | | | | | |
| Uracca | 65 | Severe | | Poorly suited | | Moderate | |
| | | Slope | 1.00 | Slope | 1.00 | Low strength | 0.50 |
| | | Landslides | 0.60 | Landslides | 0.60 | | |
| | | | | Rock fragments | 0.50 | | |
| Morval | 20 | Moderate | | Poorly suited | | Moderate | |
| | | Slope | 0.50 | Slope | 1.00 | Low strength | 0.50 |
| | | Landslides | 0.45 | Landslides | 0.45 | | |
| UrF: | | | | | | | |
| Uracca | 50 | Severe | | Poorly suited | | Moderate | |
| | | Slope | 1.00 | Slope | 1.00 | Low strength | 0.50 |
| | | Landslides | 0.60 | Landslides | 0.60 | | |
| | | | | Rock fragments | 0.50 | | |
| Culebra | 30 | Severe | | Poorly suited | | Slight | |
| | | Slope | 1.00 | Slope | 1.00 | Strength | 0.10 |
| | | Landslides | 0.60 | Landslides | 0.60 | | |
| | | | | Sandiness | 0.50 | | |
| | | | | Rock fragments | 0.50 | | |
| VeA: | | | | | | | |
| Ventero | 85 | Severe | | Poorly suited | | Severe | |
| | | Flooding | 1.00 | Ponding | 1.00 | Low strength | 1.00 |
| | | Wetness | 1.00 | Flooding | 1.00 | Wetness | 0.50 |
| | | | | Low strength | 1.00 | | |
| | | | | Wetness | 1.00 | | |

Table 8.--Haul roads, log landings, and soil rutting on forestland--continued

| Map symbol and soil name | Pct. of map unit | Limitations affecting construction of haul roads and log landings | | Suitability for log landings | | Soil rutting hazard | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| VgA: | | | | | | | |
| Vastine | 45 | Moderate | | Moderately suited | | Severe | |
| | | Flooding | 0.50 | Wetness | 0.50 | Low strength | 1.00 |
| | | Low strength | 0.50 | Flooding | 0.50 | | |
| | | | | Low strength | 0.50 | | |
| Gerrard | 40 | Moderate | | Moderately suited | | Moderate | |
| | | Flooding | 0.50 | Wetness | 0.50 | Low strength | 0.50 |
| | | Low strength | 0.50 | Flooding | 0.50 | | |
| | | Sandiness | 0.50 | | | | |
| W: | | | | | | | |
| Water | 100 | Not rated | | Not rated | | Not rated | |

## Table 9.--Hazard of erosion and suitability for roads on forestland

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

| Map symbol and soil name | Pct. of map unit | Hazard of off-road or off-trail erosion | | Hazard of erosion on roads and trails | | Suitability for roads (natural surface) | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| AmC: | | | | | | | |
| Amalia | 85 | Slight | | Moderate | | Moderately suited | |
| | | | | Slope/erodibility | 0.50 | Slope | 0.50 |
| | | | | | | Landslides | 0.03 |
| AmE: | | | | | | | |
| Amalia | 85 | Moderate | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.50 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Landslides | 0.45 |
| Aq: | | | | | | | |
| Cumulic Cryaquolls | 85 | Slight | | Slight | | Poorly suited | |
| | | | | | | Ponding | 1.00 |
| | | | | | | Flooding | 1.00 |
| | | | | | | Low strength | 0.50 |
| BfA: | | | | | | | |
| Blanfort | 85 | Slight | | Slight | | Well suited | |
| BfD: | | | | | | | |
| Blanfort | 85 | Slight | | Moderate | | Moderately suited | |
| | | | | Slope/erodibility | 0.50 | Slope | 0.50 |
| | | | | | | Landslides | 0.01 |

Table 9.--Hazard of erosion and suitability for roads on forestland--continued

| Map symbol and soil name | Pct. of map unit | Hazard of off-road or off-trail erosion | | Hazard of erosion on roads and trails | | Suitability for roads (natural surface) | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| CsA: | | | | | | | |
| Cososa | 85 | Slight | | Slight | | Well suited | |
| CsD: | | | | | | | |
| Cososa | 85 | Slight | | Moderate | | Moderately suited | |
| | | | | Slope/erodibility | 0.50 | Slope | 0.50 |
| | | | | | | Landslides | 0.03 |
| CtA: | | | | | | | |
| Costilla | 85 | Slight | | Slight | | Well suited | |
| CuF: | | | | | | | |
| Comodore | 50 | Severe | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.75 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Landslides | 0.60 |
| | | | | | | Rock fragments | 0.50 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| Uracca | 20 | Moderate | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.50 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Landslides | 0.60 |
| | | | | | | Rock fragments | 0.50 |
| DAM: | | | | | | | |
| Dam | 100 | Not rated | | Not rated | | Not rated | |
| DrD: | | | | | | | |
| Durreo | 85 | Slight | | Slight | | Well suited | |

Table 9.--Hazard of erosion and suitability for roads on forestland--continued

| Map symbol and soil name | Pct. of map unit | Hazard of off-road or off-trail erosion | | Hazard of erosion on roads and trails | | Suitability for roads (natural surface) | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| EaA: | | | | | | | |
| Eastdale | 85 | Slight | | Slight | | Moderately suited | |
| | | | | | | Ponding | 0.50 |
| | | | | | | Flooding | 0.50 |
| | | | | | | Low strength | 0.50 |
| FLB: | | | | | | | |
| Fluvents | 80 | Slight | | Slight | | Poorly suited | |
| | | | | | | Flooding | 1.00 |
| | | | | | | Wetness | 0.50 |
| | | | | | | Sandiness | 0.50 |
| FtA: | | | | | | | |
| Fuertes | 85 | Slight | | Slight | | Well suited | |
| GmE: | | | | | | | |
| Aquic Dystrocryepts- | 90 | Moderate | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.50 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Rock fragments | 0.50 |
| Gn: | | | | | | | |
| Angostura | 90 | Severe | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.75 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Rock fragments | 0.50 |
| GP: | | | | | | | |
| Pits, gravel | 100 | Not rated | | Not rated | | Not rated | |

Table 9.--Hazard of erosion and suitability for roads on forestland--continued

| Map symbol and soil name | Pct. of map unit | Hazard of off-road or off-trail erosion | | Hazard of erosion on roads and trails | | Suitability for roads (natural surface) | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| GpA: | | | | | | | |
| Graypoint | 85 | Slight | | Slight | | Well suited | |
| GrA: | | | | | | | |
| Grayco | 85 | Slight | | Slight | | Well suited | |
| GrC: | | | | | | | |
| Grayco | 85 | Slight | | Slight | | Well suited | |
| Ho: | | | | | | | |
| Hooper, loamy sand | 70 | Slight | | Slight | | Well suited | |
| Hooper, clay loam | 20 | Slight | | Slight | | Poorly suited | |
| | | | | | | Ponding | 1.00 |
| | | | | | | Low strength | 0.50 |
| Hp: | | | | | | | |
| Hooper, clay loam | 65 | Slight | | Slight | | Poorly suited | |
| | | | | | | Ponding | 1.00 |
| | | | | | | Low strength | 0.50 |
| Hooper, loamy sand | 30 | Slight | | Slight | | Well suited | |
| KbA: | | | | | | | |
| Kibin | 85 | Slight | | Slight | | Well suited | |
| KbC: | | | | | | | |
| Kibin | 85 | Slight | | Moderate | | Well suited | |
| | | | | Slope/erodibility | 0.50 | | |

Table 9.--Hazard of erosion and suitability for roads on forestland--continued

| Map symbol and soil name | Pct. of map unit | Hazard of off-road or off-trail erosion | | Hazard of erosion on roads and trails | | Suitability for roads (natural surface) | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| LbF: | | | | | | | |
| Lambe | 60 | Severe | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.75 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Landslides | 0.60 |
| Woodhall | 30 | Slight | | Moderate | | Poorly suited | |
| | | | | Slope/erodibility | 0.50 | Slope | 1.00 |
| | | | | | | Landslides | 0.27 |
| LeF: | | | | | | | |
| Fallriver | 65 | Severe | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.75 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Landslides | 0.60 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| LH: | | | | | | | |
| Leadville | 60 | Moderate | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.50 | Slope/erodibility | 0.95 | Slope | 1.00 |
| Howlett | 30 | Moderate | | Moderate | | Poorly suited | |
| | | Slope/erodibility | 0.50 | Slope/erodibility | 0.50 | Slope | 1.00 |
| M: | | | | | | | |
| Pits, mine | 100 | Not rated | | Not rated | | Not rated | |
| McA: | | | | | | | |
| McGinty | 85 | Slight | | Slight | | Well suited | |

Table 9.--Hazard of erosion and suitability for roads on forestland--continued

| Map symbol and soil name | Pct. of map unit | Hazard of off-road or off-trail erosion | | Hazard of erosion on roads and trails | | Suitability for roads (natural surface) | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| McB: | | | | | | | |
| McGinty | 85 | Slight | | Slight | | Well suited | |
| McC: | | | | | | | |
| McGinty | 85 | Slight | | Moderate | | Well suited | |
| | | | | Slope/erodibility | 0.50 | | |
| MR: | | | | | | | |
| Mirror | 70 | Severe | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.75 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Rock fragments | 0.50 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| MsA: | | | | | | | |
| Mosca | 85 | Slight | | Slight | | Well suited | |
| MtA: | | | | | | | |
| Mesita | 85 | Slight | | Slight | | Moderately suited | |
| | | | | | | Ponding | 0.50 |
| | | | | | | Flooding | 0.50 |
| | | | | | | Low strength | 0.50 |
| MuC: | | | | | | | |
| Morval | 65 | Slight | | Moderate | | Moderately suited | |
| | | | | Slope/erodibility | 0.50 | Slope | 0.50 |
| | | | | | | Landslides | 0.03 |

Table 9.--Hazard of erosion and suitability for roads on forestland--continued

| Map symbol and soil name | Pct. of map unit | Hazard of off-road or off-trail erosion | | Hazard of erosion on roads and trails | | Suitability for roads (natural surface) | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| MuC: | | | | | | | |
| Uracca | 20 | Slight | | Slight | | Moderately suited | |
| | | | | | | Rock fragments | 0.50 |
| | | | | | | Slope | 0.50 |
| | | | | | | Landslides | 0.03 |
| MuE: | | | | | | | |
| Morval | 60 | Moderate | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.50 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Landslides | 0.45 |
| Uracca | 20 | Moderate | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.50 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Landslides | 0.60 |
| | | | | | | Rock fragments | 0.50 |
| PtC: | | | | | | | |
| Potrio | 85 | Slight | | Slight | | Moderately suited | |
| | | | | | | Low strength | 0.50 |
| RF: | | | | | | | |
| Rock outcrop | 50 | Not rated | | Not rated | | Not rated | |
| Rubble land | 50 | Not rated | | Not rated | | Not rated | |
| RrA: | | | | | | | |
| Trinchera | 85 | Slight | | Slight | | Well suited | |

Table 9.--Hazard of erosion and suitability for roads on forestland--continued

| Map symbol and soil name | Pct. of map unit | Hazard of off-road or off-trail erosion | | Hazard of erosion on roads and trails | | Suitability for roads (natural surface) | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| RrB: | | | | | | | |
| Trinchera | 85 | Slight | | Slight | | Well suited | |
| RrD: | | | | | | | |
| Trinchera | 85 | Slight | | Moderate | | Moderately suited | |
| | | | | Slope/erodibility | 0.50 | Slope | 0.50 |
| | | | | | | Landslides | 0.03 |
| ShA: | | | | | | | |
| Shawa | 85 | Slight | | Slight | | Well suited | |
| ShC: | | | | | | | |
| Shawa | 85 | Slight | | Moderate | | Moderately suited | |
| | | | | Slope/erodibility | 0.50 | Slope | 0.50 |
| | | | | | | Landslides | 0.06 |
| SL: | | | | | | | |
| Scandard | 45 | Severe | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.75 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Rock fragments | 0.50 |
| Leadville | 30 | Severe | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.75 | Slope/erodibility | 0.95 | Slope | 1.00 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |

Table 9.--Hazard of erosion and suitability for roads on forestland--continued

| Map symbol and soil name | Pct. of map unit | Hazard of off-road or off-trail erosion | | Hazard of erosion on roads and trails | | Suitability for roads (natural surface) | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SpD: | | | | | | | |
| Sanpedro | 50 | Slight | | Moderate | | Moderately suited | |
| | | | | Slope/erodibility | 0.50 | Slope | 0.50 |
| | | | | | | Landslides | 0.05 |
| Potrio | 35 | Slight | | Moderate | | Moderately suited | |
| | | | | Slope/erodibility | 0.50 | Low strength | 0.50 |
| | | | | | | Slope | 0.50 |
| | | | | | | Landslides | 0.05 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| SpF: | | | | | | | |
| Sanpedro | 50 | Moderate | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.50 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Landslides | 1.00 |
| Potrio | 30 | Moderate | | Moderate | | Poorly suited | |
| | | Slope/erodibility | 0.50 | Slope/erodibility | 0.50 | Slope | 1.00 |
| | | | | | | Landslides | 0.50 |
| | | | | | | Low strength | 0.50 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| StB: | | | | | | | |
| Stunner | 85 | Slight | | Slight | | Moderately suited | |
| | | | | | | Low strength | 0.50 |

Table 9.--Hazard of erosion and suitability for roads on forestland--continued

| Map symbol and soil name | Pct. of map unit | Hazard of off-road or off-trail erosion | | Hazard of erosion on roads and trails | | Suitability for roads (natural surface) | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| StC: | | | | | | | |
| Stunner | 85 | Slight | | Moderate | | Moderately suited | |
| | | | | Slope/erodibility | 0.50 | Low strength | 0.50 |
| SzF: | | | | | | | |
| Seitz | 60 | Severe | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.75 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Landslides | 0.60 |
| Tolvar | 20 | Moderate | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.50 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Landslides | 0.60 |
| | | | | | | Rock fragments | 0.50 |
| TlD: | | | | | | | |
| Tolvar | 65 | Slight | | Moderate | | Moderately suited | |
| | | | | Slope/erodibility | 0.50 | Rock fragments | 0.50 |
| | | | | | | Slope | 0.50 |
| | | | | | | Landslides | 0.03 |
| Laveta | 25 | Slight | | Slight | | Moderately suited | |
| | | | | | | Slope | 0.50 |
| | | | | | | Landslides | 0.03 |
| TlF: | | | | | | | |
| Tolvar | 45 | Moderate | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.50 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Landslides | 0.60 |
| | | | | | | Rock fragments | 0.50 |

Table 9.--Hazard of erosion and suitability for roads on forestland--continued

| Map symbol and soil name | Pct. of map unit | Hazard of off-road or off-trail erosion | | Hazard of erosion on roads and trails | | Suitability for roads (natural surface) | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| TlF: | | | | | | | |
| Laveta | 30 | Moderate | | Moderate | | Poorly suited | |
| | | Slope/erodibility | 0.50 | Slope/erodibility | 0.50 | Slope | 1.00 |
| | | | | | | Landslides | 0.10 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| ToF: | | | | | | | |
| Tolvar | 85 | Moderate | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.50 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Landslides | 0.60 |
| | | | | | | Rock fragments | 0.50 |
| TvD: | | | | | | | |
| Travelers | 70 | Slight | | Moderate | | Well suited | |
| | | | | Slope/erodibility | 0.50 | | |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| TvF: | | | | | | | |
| Travelers | 70 | Moderate | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.50 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Landslides | 0.75 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |

Table 9.--Hazard of erosion and suitability for roads on forestland--continued

| Map symbol and soil name | Pct. of map unit | Hazard of off-road or off-trail erosion | | Hazard of erosion on roads and trails | | Suitability for roads (natural surface) | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| UmF: | | | | | | | |
| Uracca | 65 | Moderate | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.50 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Landslides | 0.60 |
| | | | | | | Rock fragments | 0.50 |
| Morval | 20 | Moderate | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.50 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Landslides | 0.45 |
| UrF: | | | | | | | |
| Uracca | 50 | Moderate | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.50 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Landslides | 0.60 |
| | | | | | | Rock fragments | 0.50 |
| Culebra | 30 | Severe | | Severe | | Poorly suited | |
| | | Slope/erodibility | 0.75 | Slope/erodibility | 0.95 | Slope | 1.00 |
| | | | | | | Landslides | 0.60 |
| | | | | | | Sandiness | 0.50 |
| | | | | | | Rock fragments | 0.50 |
| VeA: | | | | | | | |
| Ventero | 85 | Slight | | Slight | | Poorly suited | |
| | | | | | | Ponding | 1.00 |
| | | | | | | Flooding | 1.00 |
| | | | | | | Low strength | 1.00 |
| | | | | | | Wetness | 1.00 |

Table 9.--Hazard of erosion and suitability for roads on forestland--continued

| Map symbol and soil name | Pct. of map unit | Hazard of off-road or off-trail erosion | | Hazard of erosion on roads and trails | | Suitability for roads (natural surface) | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| VgA: | | | | | | | |
| Vastine | 45 | Slight | | Slight | | Moderately suited | |
| | | | | | | Wetness | 0.50 |
| | | | | | | Flooding | 0.50 |
| | | | | | | Low strength | 0.50 |
| Gerrard | 40 | Slight | | Slight | | Moderately suited | |
| | | | | | | Wetness | 0.50 |
| | | | | | | Flooding | 0.50 |
| W: | | | | | | | |
| Water | 100 | Not rated | | Not rated | | Not rated | |

## Table 10.--Forestland planting and harvesting

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

| Map symbol and soil name | Pct. of map unit | Suitability for hand planting | | Suitability for mechanical planting | | Suitability for use of harvesting equipment | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| AmC: | | | | | | | |
| Amalia | 85 | Moderately suited<br>Rock fragments | 0.50 | Poorly suited<br>Rock fragments<br>Slope | 0.75<br>0.50 | Well suited | |
| AmE: | | | | | | | |
| Amalia | 85 | Moderately suited<br>Rock fragments | 0.50 | Poorly suited<br>Slope<br>Rock fragments | 0.75<br>0.75 | Moderately suited<br>Slope | 0.50 |
| Aq: | | | | | | | |
| Cumulic Cryaquolls | 85 | Well suited | | Well suited | | Moderately suited<br>Low strength | 0.50 |
| BfA: | | | | | | | |
| Blanfort | 85 | Well suited | | Well suited | | Well suited | |
| BfD: | | | | | | | |
| Blanfort | 85 | Well suited | | Moderately suited<br>Slope | 0.50 | Well suited | |
| CsA: | | | | | | | |
| Cososa | 85 | Well suited | | Moderately suited<br>Rock fragments | 0.50 | Well suited | |

Table 10.--Forestland planting and harvesting--continued

| Map symbol and soil name | Pct. of map unit | Suitability for hand planting | | Suitability for mechanical planting | | Suitability for use of harvesting equipment | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| CsD: | | | | | | | |
| Cososa | 85 | Well suited | | Moderately suited | | Well suited | |
| | | | | Rock fragments | 0.50 | | |
| | | | | Slope | 0.50 | | |
| CtA: | | | | | | | |
| Costilla | 85 | Well suited | | Moderately suited | | Well suited | |
| | | | | Rock fragments | 0.50 | | |
| CuF: | | | | | | | |
| Comodore | 50 | Poorly suited | | Unsuited | | Poorly suited | |
| | | Rock fragments | 0.75 | Slope | 1.00 | Slope | 1.00 |
| | | Slope | 0.50 | Rock fragments | 1.00 | Rock fragments | 0.50 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| Uracca | 20 | Poorly suited | | Unsuited | | Moderately suited | |
| | | Rock fragments | 0.75 | Slope | 1.00 | Slope | 0.50 |
| | | Slope | 0.50 | Rock fragments | 1.00 | Rock fragments | 0.50 |
| DAM: | | | | | | | |
| Dam | 100 | Not rated | | Not rated | | Not rated | |
| DrD: | | | | | | | |
| Durreo | 85 | Moderately suited | | Poorly suited | | Well suited | |
| | | Rock fragments | 0.50 | Rock fragments | 0.75 | | |
| | | | | Slope | 0.50 | | |

Table 10.--Forestland planting and harvesting--continued

| Map symbol and soil name | Pct. of map unit | Suitability for hand planting | | Suitability for mechanical planting | | Suitability for use of harvesting equipment | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| EaA: | | | | | | | |
| Eastdale | 85 | Moderately suited | | Moderately suited | | Moderately suited | |
| | | Stickiness; high plasticity index | 0.50 | Stickiness; high plasticity index | 0.50 | Low strength | 0.50 |
| FLB: | | | | | | | |
| Fluvents | 80 | Moderately suited | | Moderately suited | | Moderately suited | |
| | | Sandiness | 0.50 | Rock fragments | 0.50 | Wetness | 0.50 |
| | | Rock fragments | 0.50 | Sandiness | 0.50 | Sandiness | 0.50 |
| FtA: | | | | | | | |
| Fuertes | 85 | Well suited | | Well suited | | Well suited | |
| GmE: | | | | | | | |
| Aquic Dystrocryepts- | 90 | Poorly suited | | Unsuited | | Moderately suited | |
| | | Rock fragments | 0.75 | Rock fragments | 1.00 | Rock fragments | 0.50 |
| | | | | Slope | 0.75 | | |
| Gn: | | | | | | | |
| Angostura | 90 | Moderately suited | | Unsuited | | Poorly suited | |
| | | Rock fragments | 0.50 | Slope | 1.00 | Slope | 1.00 |
| | | Slope | 0.50 | Rock fragments | 0.75 | Rock fragments | 0.50 |
| GP: | | | | | | | |
| Pits, gravel | 100 | Not rated | | Not rated | | Not rated | |
| GpA: | | | | | | | |
| Graypoint | 85 | Moderately suited | | Poorly suited | | Well suited | |
| | | Rock fragments | 0.50 | Rock fragments | 0.75 | | |

Table 10.--Forestland planting and harvesting--continued

| Map symbol and soil name | Pct. of map unit | Suitability for hand planting | | Suitability for mechanical planting | | Suitability for use of harvesting equipment | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| GrA: | | | | | | | |
| Grayco | 85 | Well suited | | Well suited | | Well suited | |
| GrC: | | | | | | | |
| Grayco | 85 | Well suited | | Well suited | | Well suited | |
| Ho: | | | | | | | |
| Hooper, loamy sand | 70 | Moderately suited<br>Stickiness; high plasticity index | 0.50 | Moderately suited<br>Stickiness; high plasticity index | 0.50 | Well suited | |
| Hooper, clay loam | 20 | Moderately suited<br>Stickiness; high plasticity index | 0.50 | Moderately suited<br>Stickiness; high plasticity index | 0.50 | Moderately suited<br>Low strength | 0.50 |
| Hp: | | | | | | | |
| Hooper, clay loam | 65 | Moderately suited<br>Stickiness; high plasticity index | 0.50 | Moderately suited<br>Stickiness; high plasticity index | 0.50 | Moderately suited<br>Low strength | 0.50 |
| Hooper, loamy sand | 30 | Moderately suited<br>Stickiness; high plasticity index | 0.50 | Moderately suited<br>Stickiness; high plasticity index | 0.50 | Well suited | |
| KbA: | | | | | | | |
| Kibin | 85 | Well suited | | Well suited | | Well suited | |
| KbC: | | | | | | | |
| Kibin | 85 | Well suited | | Well suited | | Well suited | |

Table 10.--Forestland planting and harvesting--continued

| Map symbol and soil name | Pct. of map unit | Suitability for hand planting | | Suitability for mechanical planting | | Suitability for use of harvesting equipment | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| LbF: | | | | | | | |
| Lambe | 60 | Moderately suited | | Unsuited | | Poorly suited | |
| | | Rock fragments | 0.50 | Slope | 1.00 | Slope | 1.00 |
| | | Slope | 0.50 | Rock fragments | 0.75 | | |
| Woodhall | 30 | Well suited | | Moderately suited | | Well suited | |
| | | | | Slope | 0.50 | | |
| | | | | Rock fragments | 0.50 | | |
| LeF: | | | | | | | |
| Fallriver | 65 | Moderately suited | | Unsuited | | Poorly suited | |
| | | Rock fragments | 0.50 | Slope | 1.00 | Slope | 1.00 |
| | | Slope | 0.50 | Rock fragments | 0.75 | | |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| LH: | | | | | | | |
| Leadville | 60 | Well suited | | Unsuited | | Moderately suited | |
| | | | | Slope | 1.00 | Slope | 0.50 |
| | | | | Rock fragments | 0.50 | | |
| Howlett | 30 | Well suited | | Poorly suited | | Moderately suited | |
| | | | | Slope | 0.75 | Slope | 0.50 |
| | | | | Rock fragments | 0.50 | | |
| M: | | | | | | | |
| Pits, mine | 100 | Not rated | | Not rated | | Not rated | |

Table 10.--Forestland planting and harvesting--continued

| Map symbol and soil name | Pct. of map unit | Suitability for hand planting | | Suitability for mechanical planting | | Suitability for use of harvesting equipment | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| McA: | | | | | | | |
| McGinty | 85 | Well suited | | Well suited | | Well suited | |
| McB: | | | | | | | |
| McGinty | 85 | Well suited | | Well suited | | Well suited | |
| McC: | | | | | | | |
| McGinty | 85 | Well suited | | Moderately suited | | Well suited | |
| | | | | Slope | 0.50 | | |
| MR: | | | | | | | |
| Mirror | 70 | Moderately suited | | Unsuited | | Poorly suited | |
| | | Rock fragments | 0.50 | Slope | 1.00 | Slope | 1.00 |
| | | Slope | 0.50 | Rock fragments | 1.00 | Rock fragments | 0.50 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| MsA: | | | | | | | |
| Mosca | 85 | Poorly suited | | Well suited | | Well suited | |
| | | Restrictive layer | 0.75 | | | | |
| MtA: | | | | | | | |
| Mesita | 85 | Moderately suited | | Moderately suited | | Moderately suited | |
| | | Stickiness; high plasticity index | 0.50 | Stickiness; high plasticity index | 0.50 | Low strength | 0.50 |
| MuC: | | | | | | | |
| Morval | 65 | Well suited | | Moderately suited | | Well suited | |
| | | | | Slope | 0.50 | | |

Table 10.--Forestland planting and harvesting--continued

| Map symbol and soil name | Pct. of map unit | Suitability for hand planting | | Suitability for mechanical planting | | Suitability for use of harvesting equipment | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| MuC: | | | | | | | |
| Uracca | 20 | Poorly suited | | Unsuited | | Moderately suited | |
| | | Rock fragments | 0.75 | Rock fragments | 1.00 | Rock fragments | 0.50 |
| | | | | Slope | 0.50 | | |
| MuE: | | | | | | | |
| Morval | 60 | Well suited | | Poorly suited | | Moderately suited | |
| | | | | Slope | 0.75 | Slope | 0.50 |
| Uracca | 20 | Poorly suited | | Unsuited | | Moderately suited | |
| | | Rock fragments | 0.75 | Slope | 1.00 | Rock fragments | 0.50 |
| | | Slope | 0.50 | Rock fragments | 1.00 | Slope | 0.50 |
| PtC: | | | | | | | |
| Potrio | 85 | Well suited | | Moderately suited | | Moderately suited | |
| | | | | Rock fragments | 0.50 | Low strength | 0.50 |
| RF: | | | | | | | |
| Rock outcrop | 50 | Not rated | | Not rated | | Not rated | |
| Rubble land | 50 | Not rated | | Not rated | | Not rated | |
| RrA: | | | | | | | |
| Trinchera | 85 | Well suited | | Well suited | | Well suited | |
| RrB: | | | | | | | |
| Trinchera | 85 | Well suited | | Well suited | | Well suited | |

Table 10.--Forestland planting and harvesting--continued

| Map symbol and soil name | Pct. of map unit | Suitability for hand planting | | Suitability for mechanical planting | | Suitability for use of harvesting equipment | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| RrD: | | | | | | | |
| Trinchera | 85 | Well suited | | Moderately suited | | Well suited | |
| | | | | Slope | 0.50 | | |
| ShA: | | | | | | | |
| Shawa | 85 | Well suited | | Well suited | | Well suited | |
| ShC: | | | | | | | |
| Shawa | 85 | Well suited | | Moderately suited | | Well suited | |
| | | | | Slope | 0.50 | | |
| SL: | | | | | | | |
| Scandard | 45 | Moderately suited | | Unsuited | | Poorly suited | |
| | | Rock fragments | 0.50 | Slope | 1.00 | Slope | 1.00 |
| | | Slope | 0.50 | Rock fragments | 0.75 | Rock fragments | 0.50 |
| Leadville | 30 | Moderately suited | | Unsuited | | Poorly suited | |
| | | Slope | 0.50 | Slope | 1.00 | Slope | 1.00 |
| | | | | Rock fragments | 0.50 | | |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| SpD: | | | | | | | |
| Sanpedro | 50 | Moderately suited | | Unsuited | | Well suited | |
| | | Rock fragments | 0.50 | Rock fragments | 1.00 | | |
| | | | | Slope | 0.50 | | |

Table 10.--Forestland planting and harvesting--continued

| Map symbol and soil name | Pct. of map unit | Suitability for hand planting | | Suitability for mechanical planting | | Suitability for use of harvesting equipment | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SpD: | | | | | | | |
| Potrio | 35 | Well suited | | Moderately suited | | Moderately suited | |
| | | | | Rock fragments | 0.50 | Low strength | 0.50 |
| | | | | Slope | 0.50 | | |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| SpF: | | | | | | | |
| Sanpedro | 50 | Moderately suited | | Unsuited | | Moderately suited | |
| | | Rock fragments | 0.50 | Rock fragments | 1.00 | Slope | 0.50 |
| | | Slope | 0.50 | Slope | 1.00 | | |
| Potrio | 30 | Well suited | | Moderately suited | | Moderately suited | |
| | | | | Slope | 0.50 | Low strength | 0.50 |
| | | | | Rock fragments | 0.50 | | |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| StB: | | | | | | | |
| Stunner | 85 | Moderately suited | | Moderately suited | | Moderately suited | |
| | | Stickiness; high plasticity index | 0.50 | Stickiness; high plasticity index | 0.50 | Low strength | 0.50 |
| StC: | | | | | | | |
| Stunner | 85 | Moderately suited | | Moderately suited | | Moderately suited | |
| | | Stickiness; high plasticity index | 0.50 | Slope | 0.50 | Low strength | 0.50 |
| | | | | Stickiness; high plasticity index | 0.50 | | |

Table 10.--Forestland planting and harvesting--continued

| Map symbol and soil name | Pct. of map unit | Suitability for hand planting | | Suitability for mechanical planting | | Suitability for use of harvesting equipment | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SzF: | | | | | | | |
| Seitz | 60 | Moderately suited | | Unsuited | | Poorly suited | |
| | | Rock fragments | 0.50 | Slope | 1.00 | Slope | 1.00 |
| | | Stickiness; high plasticity index | 0.50 | Rock fragments | 0.75 | | |
| | | Slope | 0.50 | Stickiness; high plasticity index | 0.50 | | |
| Tolvar | 20 | Poorly suited | | Unsuited | | Moderately suited | |
| | | Rock fragments | 0.75 | Slope | 1.00 | Slope | 0.50 |
| | | Slope | 0.50 | Rock fragments | 1.00 | Rock fragments | 0.50 |
| TlD: | | | | | | | |
| Tolvar | 65 | Poorly suited | | Unsuited | | Moderately suited | |
| | | Rock fragments | 0.75 | Rock fragments | 1.00 | Rock fragments | 0.50 |
| | | | | Slope | 0.50 | | |
| Laveta | 25 | Moderately suited | | Poorly suited | | Well suited | |
| | | Rock fragments | 0.50 | Rock fragments | 0.75 | | |
| | | | | Slope | 0.50 | | |
| TlF: | | | | | | | |
| Tolvar | 45 | Poorly suited | | Unsuited | | Moderately suited | |
| | | Rock fragments | 0.75 | Slope | 1.00 | Slope | 0.50 |
| | | Slope | 0.50 | Rock fragments | 1.00 | Rock fragments | 0.50 |
| Laveta | 30 | Moderately suited | | Poorly suited | | Well suited | |
| | | Rock fragments | 0.50 | Rock fragments | 0.75 | | |
| | | | | Slope | 0.50 | | |

Table 10.--Forestland planting and harvesting--continued

| Map symbol and soil name | Pct. of map unit | Suitability for hand planting | | Suitability for mechanical planting | | Suitability for use of harvesting equipment | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| TlF: | | | | | | | |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| ToF: | | | | | | | |
| Tolvar | 85 | Poorly suited | | Unsuited | | Moderately suited | |
| | | Rock fragments | 0.75 | Slope | 1.00 | Slope | 0.50 |
| | | Slope | 0.50 | Rock fragments | 1.00 | Rock fragments | 0.50 |
| TvD: | | | | | | | |
| Travelers | 70 | Moderately suited | | Poorly suited | | Well suited | |
| | | Rock fragments | 0.50 | Rock fragments | 0.75 | | |
| | | | | Slope | 0.50 | | |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| TvF: | | | | | | | |
| Travelers | 70 | Moderately suited | | Poorly suited | | Moderately suited | |
| | | Rock fragments | 0.50 | Slope | 0.75 | Slope | 0.50 |
| | | | | Rock fragments | 0.75 | | |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| UmF: | | | | | | | |
| Uracca | 65 | Poorly suited | | Unsuited | | Moderately suited | |
| | | Rock fragments | 0.75 | Slope | 1.00 | Slope | 0.50 |
| | | Slope | 0.50 | Rock fragments | 1.00 | Rock fragments | 0.50 |
| Morval | 20 | Well suited | | Poorly suited | | Moderately suited | |
| | | | | Slope | 0.75 | Slope | 0.50 |

Table 10.--Forestland planting and harvesting--continued

| Map symbol and soil name | Pct. of map unit | Suitability for hand planting | | Suitability for mechanical planting | | Suitability for use of harvesting equipment | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| UrF: | | | | | | | |
| Uracca | 50 | Poorly suited | | Unsuited | | Moderately suited | |
| | | Rock fragments | 0.75 | Slope | 1.00 | Slope | 0.50 |
| | | Slope | 0.50 | Rock fragments | 1.00 | Rock fragments | 0.50 |
| Culebra | 30 | Unsuited | | Unsuited | | Poorly suited | |
| | | Restrictive layer | 1.00 | Rock fragments | 1.00 | Slope | 1.00 |
| | | Rock fragments | 0.75 | Slope | 1.00 | Sandiness | 0.50 |
| | | Sandiness | 0.50 | Restrictive layer | 1.00 | Rock fragments | 0.50 |
| | | Slope | 0.50 | Sandiness | 0.50 | | |
| VeA: | | | | | | | |
| Ventero | 85 | Poorly suited | | Poorly suited | | Poorly suited | |
| | | Wetness | 0.75 | Wetness | 0.75 | Low strength | 1.00 |
| | | | | | | Wetness | 1.00 |
| VgA: | | | | | | | |
| Vastine | 45 | Well suited | | Well suited | | Moderately suited | |
| | | | | | | Low strength | 0.50 |
| Gerrard | 40 | Moderately suited | | Moderately suited | | Well suited | |
| | | Stickiness; high plasticity index | 0.50 | Stickiness; high plasticity index | 0.50 | | |
| W: | | | | | | | |
| Water | 100 | Not rated | | Not rated | | Not rated | |

**Table 11.--Forestland site preparation**

**(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)**

| Map symbol and soil name | Pct. of map unit | Suitability for mechanical site preparation (surface) | | Suitability for mechanical site preparation (deep) | |
|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value |
| AmC: | | | | | |
| Amalia | 85 | Poorly suited | | Well suited | |
| | | Rock fragments | 0.50 | | |
| AmE: | | | | | |
| Amalia | 85 | Poorly suited | | Poorly suited | |
| | | Rock fragments | 0.50 | Slope | 0.50 |
| | | Slope | 0.50 | | |
| Aq: | | | | | |
| Cumulic Cryaquolls | 85 | Well suited | | Well suited | |
| BfA: | | | | | |
| Blanfort | 85 | Well suited | | Well suited | |
| BfD: | | | | | |
| Blanfort | 85 | Well suited | | Well suited | |
| CsA: | | | | | |
| Cososa | 85 | Well suited | | Well suited | |
| CsD: | | | | | |
| Cososa | 85 | Well suited | | Well suited | |
| CtA: | | | | | |
| Costilla | 85 | Well suited | | Well suited | |
| CuF: | | | | | |
| Comodore | 50 | Unsuited | | Unsuited | |
| | | Slope | 1.00 | Slope | 1.00 |
| | | Rock fragments | 0.50 | Restrictive layer | 1.00 |
| | | | | Rock fragments | 0.50 |
| Rock outcrop | 20 | Not rated | | Not rated | |
| Uracca | 20 | Poorly suited | | Poorly suited | |
| | | Slope | 0.50 | Slope | 0.50 |
| | | Rock fragments | 0.50 | | |
| DAM: | | | | | |
| Dam | 100 | Not rated | | Not rated | |
| DrD: | | | | | |
| Durreo | 85 | Poorly suited | | Well suited | |
| | | Rock fragments | 0.50 | | |
| EaA: | | | | | |
| Eastdale | 85 | Well suited | | Well suited | |
| FLB: | | | | | |
| Fluvents | 80 | Poorly suited | | Unsuited | |
| | | Rock fragments | 0.50 | Wetness | 1.00 |

**Table 11.--Forestland site preparation--continued**

| Map symbol and soil name | Pct. of map unit | Suitability for mechanical site preparation (surface) | | Suitability for mechanical site preparation (deep) | |
|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value |
| FtA: | | | | | |
| Fuertes | 85 | Well suited | | Well suited | |
| GmE: | | | | | |
| Aquic Dystrocryepts | 90 | Poorly suited | | Poorly suited | |
| | | Slope | 0.50 | Slope | 0.50 |
| | | Rock fragments | 0.50 | | |
| Gn: | | | | | |
| Angostura | 90 | Unsuited | | Unsuited | |
| | | Slope | 1.00 | Slope | 1.00 |
| | | Rock fragments | 0.50 | Rock fragments | 0.50 |
| GP: | | | | | |
| Pits, gravel | 100 | Not rated | | Not rated | |
| GpA: | | | | | |
| Graypoint | 85 | Poorly suited | | Well suited | |
| | | Rock fragments | 0.50 | | |
| GrA: | | | | | |
| Grayco | 85 | Well suited | | Well suited | |
| GrC: | | | | | |
| Grayco | 85 | Well suited | | Well suited | |
| Ho: | | | | | |
| Hooper, loamy sand | 70 | Well suited | | Well suited | |
| Hooper, clay loam | 20 | Well suited | | Well suited | |
| Hp: | | | | | |
| Hooper, clay loam | 65 | Well suited | | Well suited | |
| Hooper, loamy sand | 30 | Well suited | | Well suited | |
| KbA: | | | | | |
| Kibin | 85 | Well suited | | Well suited | |
| KbC: | | | | | |
| Kibin | 85 | Well suited | | Well suited | |
| LbF: | | | | | |
| Lambe | 60 | Unsuited | | Unsuited | |
| | | Slope | 1.00 | Slope | 1.00 |
| | | Rock fragments | 0.50 | | |
| Woodhall | 30 | Well suited | | Poorly suited | |
| | | | | Restrictive layer | 0.50 |
| LeF: | | | | | |
| Fallriver | 65 | Unsuited | | Unsuited | |
| | | Slope | 1.00 | Slope | 1.00 |
| Rock outcrop | 20 | Not rated | | Not rated | |

Table 11.--Forestland site preparation--continued

| Map symbol and soil name | Pct. of map unit | Suitability for mechanical site preparation (surface) | | Suitability for mechanical site preparation (deep) | |
|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value |
| LH: | | | | | |
| Leadville | 60 | Poorly suited | | Poorly suited | |
| | | Slope | 0.50 | Slope | 0.50 |
| | | | | Rock fragments | 0.50 |
| Howlett | 30 | Poorly suited | | Poorly suited | |
| | | Slope | 0.50 | Slope | 0.50 |
| M: | | | | | |
| Pits, mine | 100 | Not rated | | Not rated | |
| McA: | | | | | |
| McGinty | 85 | Well suited | | Well suited | |
| McB: | | | | | |
| McGinty | 85 | Well suited | | Well suited | |
| McC: | | | | | |
| McGinty | 85 | Well suited | | Well suited | |
| MR: | | | | | |
| Mirror | 70 | Unsuited | | Unsuited | |
| | | Slope | 1.00 | Slope | 1.00 |
| | | Rock fragments | 0.50 | Rock fragments | 0.50 |
| | | | | Restrictive layer | 0.50 |
| Rock outcrop | 20 | Not rated | | Not rated | |
| MsA: | | | | | |
| Mosca | 85 | Well suited | | Well suited | |
| MtA: | | | | | |
| Mesita | 85 | Poorly suited | | Well suited | |
| | | Stickiness; high plasticity index | 0.50 | | |
| MuC: | | | | | |
| Morval | 65 | Well suited | | Well suited | |
| Uracca | 20 | Poorly suited | | Well suited | |
| | | Rock fragments | 0.50 | | |
| MuE: | | | | | |
| Morval | 60 | Poorly suited | | Poorly suited | |
| | | Slope | 0.50 | Slope | 0.50 |
| Uracca | 20 | Poorly suited | | Poorly suited | |
| | | Slope | 0.50 | Slope | 0.50 |
| | | Rock fragments | 0.50 | | |
| PtC: | | | | | |
| Potrio | 85 | Well suited | | Well suited | |
| RF: | | | | | |
| Rock outcrop | 50 | Not rated | | Not rated | |
| Rubble land | 50 | Not rated | | Not rated | |

**Table 11.--Forestland site preparation--continued**

| Map symbol and soil name | Pct. of map unit | Suitability for mechanical site preparation (surface) | | Suitability for mechanical site preparation (deep) | |
|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value |
| RrA: | | | | | |
| Trinchera | 85 | Well suited | | Well suited | |
| RrB: | | | | | |
| Trinchera | 85 | Well suited | | Well suited | |
| RrD: | | | | | |
| Trinchera | 85 | Well suited | | Well suited | |
| ShA: | | | | | |
| Shawa | 85 | Well suited | | Well suited | |
| ShC: | | | | | |
| Shawa | 85 | Well suited | | Well suited | |
| SL: | | | | | |
| Scandard | 45 | Unsuited | | Unsuited | |
| | | Slope | 1.00 | Slope | 1.00 |
| | | Rock fragments | 0.50 | Restrictive layer | 0.50 |
| | | | | Rock fragments | 0.50 |
| Leadville | 30 | Unsuited | | Unsuited | |
| | | Slope | 1.00 | Slope | 1.00 |
| | | | | Rock fragments | 0.50 |
| Rock outcrop | 15 | Not rated | | Not rated | |
| SpD: | | | | | |
| Sanpedro | 50 | Poorly suited | | Unsuited | |
| | | Rock fragments | 0.50 | Restrictive layer | 1.00 |
| | | | | Rock fragments | 0.50 |
| Potrio | 35 | Well suited | | Well suited | |
| Rock outcrop | 15 | Not rated | | Not rated | |
| SpF: | | | | | |
| Sanpedro | 50 | Poorly suited | | Unsuited | |
| | | Slope | 0.50 | Restrictive layer | 1.00 |
| | | Rock fragments | 0.50 | Slope | 0.50 |
| | | | | Rock fragments | 0.50 |
| Potrio | 30 | Poorly suited | | Poorly suited | |
| | | Slope | 0.50 | Slope | 0.50 |
| Rock outcrop | 20 | Not rated | | Not rated | |
| StB: | | | | | |
| Stunner | 85 | Well suited | | Well suited | |
| StC: | | | | | |
| Stunner | 85 | Well suited | | Well suited | |
| SzF: | | | | | |
| Seitz | 60 | Unsuited | | Unsuited | |
| | | Slope | 1.00 | Slope | 1.00 |

Table 11.--Forestland site preparation--continued

| Map symbol and soil name | Pct. of map unit | Suitability for mechanical site preparation (surface) | | Suitability for mechanical site preparation (deep) | |
|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SzF: | | | | | |
| Tolvar | 20 | Poorly suited | | Poorly suited | |
| | | Slope | 0.50 | Slope | 0.50 |
| | | Rock fragments | 0.50 | Rock fragments | 0.50 |
| TlD: | | | | | |
| Tolvar | 65 | Poorly suited | | Poorly suited | |
| | | Rock fragments | 0.50 | Rock fragments | 0.50 |
| Laveta | 25 | Well suited | | Poorly suited | |
| | | | | Restrictive layer | 0.50 |
| TlF: | | | | | |
| Tolvar | 45 | Poorly suited | | Poorly suited | |
| | | Slope | 0.50 | Slope | 0.50 |
| | | Rock fragments | 0.50 | Rock fragments | 0.50 |
| Laveta | 30 | Poorly suited | | Poorly suited | |
| | | Slope | 0.50 | Slope | 0.50 |
| | | | | Restrictive layer | 0.50 |
| Rock outcrop | 15 | Not rated | | Not rated | |
| ToF: | | | | | |
| Tolvar | 85 | Poorly suited | | Poorly suited | |
| | | Slope | 0.50 | Slope | 0.50 |
| | | Rock fragments | 0.50 | Rock fragments | 0.50 |
| TvD: | | | | | |
| Travelers | 70 | Poorly suited | | Unsuited | |
| | | Rock fragments | 0.50 | Restrictive layer | 1.00 |
| Rock outcrop | 15 | Not rated | | Not rated | |
| TvF: | | | | | |
| Travelers | 70 | Poorly suited | | Unsuited | |
| | | Slope | 0.50 | Restrictive layer | 1.00 |
| | | Rock fragments | 0.50 | Slope | 0.50 |
| Rock outcrop | 15 | Not rated | | Not rated | |
| UmF: | | | | | |
| Uracca | 65 | Poorly suited | | Poorly suited | |
| | | Slope | 0.50 | Slope | 0.50 |
| | | Rock fragments | 0.50 | | |
| Morval | 20 | Poorly suited | | Poorly suited | |
| | | Slope | 0.50 | Slope | 0.50 |
| UrF: | | | | | |
| Uracca | 50 | Poorly suited | | Poorly suited | |
| | | Slope | 0.50 | Slope | 0.50 |
| | | Rock fragments | 0.50 | | |

**Table 11.--Forestland site preparation--continued**

| Map symbol and soil name | Pct. of map unit | Suitability for mechanical site preparation (surface) | | Suitability for mechanical site preparation (deep) | |
|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value |
| UrF: | | | | | |
| Culebra | 30 | Unsuited | | Unsuited | |
| | | Slope | 1.00 | Restrictive layer | 1.00 |
| | | Restrictive layer | 1.00 | Slope | 1.00 |
| | | Rock fragments | 0.50 | | |
| VeA: | | | | | |
| Ventero | 85 | Poorly suited | | Unsuited | |
| | | Wetness | 0.75 | Wetness | 1.00 |
| VgA: | | | | | |
| Vastine | 45 | Well suited | | Well suited | |
| Gerrard | 40 | Well suited | | Well suited | |
| W: | | | | | |
| Water | 100 | Not rated | | Not rated | |

Table 12.--Camp areas, picnic areas, and playgrounds

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

| Map symbol and soil name | Pct. of map unit | Camp areas | | Picnic areas | | Playgrounds | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| AmC: | | | | | | | |
| Amalia | 85 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Gravel | 0.98 | Gravel | 0.98 | Gravel | 1.00 |
| | | | | | | Slope | 1.00 |
| AmE: | | | | | | | |
| Amalia | 85 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Gravel | 1.00 |
| | | Gravel | 0.98 | Gravel | 0.98 | Slope | 1.00 |
| Aq: | | | | | | | |
| Cumulic Cryaquolls | 85 | Very limited | | Very limited | | Very limited | |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 |
| | | Flooding | 1.00 | Ponding | 1.00 | Flooding | 1.00 |
| | | Ponding | 1.00 | Flooding | 0.40 | Ponding | 1.00 |
| BfA: | | | | | | | |
| Blanfort | 85 | Not limited | | Not limited | | Not limited | |
| BfD: | | | | | | | |
| Blanfort | 85 | Not limited | | Not limited | | Very limited | |
| | | | | | | Slope | 1.00 |

Table 12.--Camp areas, picnic areas, and playgrounds--continued

| Map symbol and soil name | Pct. of map unit | Camp areas | | Picnic areas | | Playgrounds | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| CsA: | | | | | | | |
| Cososa | 85 | Somewhat limited | | Somewhat limited | | Somewhat limited | |
| | | Too sandy | 0.95 | Too sandy | 0.95 | Too sandy | 0.95 |
| CsD: | | | | | | | |
| Cososa | 85 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Too sandy | 0.95 | Too sandy | 0.95 | Slope | 1.00 |
| | | | | | | Too sandy | 0.95 |
| CtA: | | | | | | | |
| Costilla | 85 | Somewhat limited | | Somewhat limited | | Somewhat limited | |
| | | Too sandy | 0.50 | Too sandy | 0.50 | Too sandy | 0.50 |
| | | | | | | Gravel | 0.32 |
| CuF: | | | | | | | |
| Comodore | 50 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Depth to bedrock | 1.00 | Depth to bedrock | 1.00 | Depth to bedrock | 1.00 |
| | | Dusty | 0.50 | Dusty | 0.50 | Gravel | 1.00 |
| | | Gravel | 0.31 | Gravel | 0.31 | Dusty | 0.50 |
| | | Large stones content | 0.18 | Large stones content | 0.18 | Large stones content | 0.18 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| Uracca | 20 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Gravel | 0.02 | Gravel | 0.02 | Gravel | 1.00 |

Table 12.--Camp areas, picnic areas, and playgrounds--continued

| Map symbol and soil name | Pct. of map unit | Camp areas | | Picnic areas | | Playgrounds | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| DAM: | | | | | | | |
| Dam | 100 | Not rated | | Not rated | | Not rated | |
| DrD: | | | | | | | |
| Durreo | 85 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Gravel | 0.11 | Gravel | 0.11 | Gravel | 1.00 |
| | | | | | | Slope | 0.88 |
| EaA: | | | | | | | |
| Eastdale | 85 | Very limited | | Very limited | | Very limited | |
| | | Flooding | 1.00 | Ponding | 1.00 | Ponding | 1.00 |
| | | Ponding | 1.00 | Slow water movement | 0.21 | Flooding | 0.60 |
| | | Slow water movement | 0.21 | | | Slow water movement | 0.21 |
| FLB: | | | | | | | |
| Fluvents | 80 | Very limited | | Very limited | | Very limited | |
| | | Depth to saturated zone | 1.00 | Too sandy | 1.00 | Gravel | 1.00 |
| | | Flooding | 1.00 | Gravel | 1.00 | Depth to saturated zone | 1.00 |
| | | Too sandy | 1.00 | Depth to saturated zone | 0.99 | Too sandy | 1.00 |
| | | Gravel | 1.00 | Flooding | 0.40 | Flooding | 1.00 |
| FtA: | | | | | | | |
| Fuertes | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Gravel | 0.56 |

Table 12.--Camp areas, picnic areas, and playgrounds--continued

| Map symbol and soil name | Pct. of map unit | Camp areas | | Picnic areas | | Playgrounds | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| GmE: | | | | | | | |
| Aquic Dystrocryepts- | 90 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones content | 0.19 | Large stones content | 0.19 | Gravel | 0.32 |
| | | | | | | Large stones content | 0.19 |
| Gn: | | | | | | | |
| Angostura---------- | 90 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Large stones content | 1.00 | Large stones content | 1.00 |
| | | Large stones content | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| GP: | | | | | | | |
| Pits, gravel-------- | 100 | Not rated | | Not rated | | Not rated | |
| GpA: | | | | | | | |
| Graypoint---------- | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Gravel | 0.44 |
| GrA: | | | | | | | |
| Grayco------------- | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Gravel | 0.44 |
| GrC: | | | | | | | |
| Grayco------------- | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Slope | 0.50 |
| | | | | | | Gravel | 0.44 |

Table 12.--Camp areas, picnic areas, and playgrounds--continued

| Map symbol and soil name | Pct. of map unit | Camp areas | | Picnic areas | | Playgrounds | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| Ho: | | | | | | | |
| Hooper, loamy sand-- | 70 | Very limited | | Very limited | | Very limited | |
| | | Sodium content | 1.00 | Sodium content | 1.00 | Sodium content | 1.00 |
| | | Slow water movement | 0.96 | Slow water movement | 0.96 | Slow water movement | 0.96 |
| | | Too sandy | 0.86 | Too sandy | 0.86 | Too sandy | 0.86 |
| Hooper, clay loam--- | 20 | Very limited | | Very limited | | Very limited | |
| | | Sodium content | 1.00 | Sodium content | 1.00 | Sodium content | 1.00 |
| | | Ponding | 1.00 | Ponding | 1.00 | Ponding | 1.00 |
| | | Slow water movement | 0.96 | Slow water movement | 0.96 | Slow water movement | 0.96 |
| Hp: | | | | | | | |
| Hooper, clay loam--- | 65 | Very limited | | Very limited | | Very limited | |
| | | Sodium content | 1.00 | Sodium content | 1.00 | Sodium content | 1.00 |
| | | Ponding | 1.00 | Ponding | 1.00 | Ponding | 1.00 |
| | | Slow water movement | 0.96 | Slow water movement | 0.96 | Slow water movement | 0.96 |
| Hooper, loamy sand-- | 30 | Very limited | | Very limited | | Very limited | |
| | | Sodium content | 1.00 | Sodium content | 1.00 | Sodium content | 1.00 |
| | | Slow water movement | 0.96 | Slow water movement | 0.96 | Slow water movement | 0.96 |
| | | Too sandy | 0.86 | Too sandy | 0.86 | Too sandy | 0.86 |
| KbA: | | | | | | | |
| Kibin---------- | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Gravel | 0.04 |

Table 12.--Camp areas, picnic areas, and playgrounds--continued

| Map symbol and soil name | Pct. of map unit | Camp areas | | Picnic areas | | Playgrounds | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| KbC: | | | | | | | |
| Kibin | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Slope | 0.50 |
| | | | | | | Gravel | 0.04 |
| LbF: | | | | | | | |
| Lambe | 60 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Gravel | 1.00 |
| | | Gravel | 0.22 | Gravel | 0.22 | Slope | 1.00 |
| | | Large stones content | 0.19 | Large stones content | 0.19 | Large stones content | 0.19 |
| Woodhall | 30 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Slope | 0.96 | Slope | 0.96 | Gravel | 1.00 |
| | | Gravel | 0.48 | Gravel | 0.48 | Slope | 1.00 |
| | | | | | | Depth to bedrock | 0.29 |
| LeF: | | | | | | | |
| Fallriver | 65 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| LH: | | | | | | | |
| Leadville | 60 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones content | 0.76 | Large stones content | 0.76 | Large stones content | 0.76 |

Table 12.--Camp areas, picnic areas, and playgrounds--continued

| Map symbol and soil name | Pct. of map unit | Camp areas | | Picnic areas | | Playgrounds | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| LH: | | | | | | | |
| Howlett | 30 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones content | 0.19 | Large stones content | 0.19 | Large stones content | 0.19 |
| M: | | | | | | | |
| Pits, mine | 100 | Not rated | | Not rated | | Not rated | |
| McA: | | | | | | | |
| McGinty | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Gravel | 0.44 |
| McB: | | | | | | | |
| McGinty | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Gravel | 0.44 |
| McC: | | | | | | | |
| McGinty | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Slope | 0.88 |
| | | | | | | Gravel | 0.44 |
| MR: | | | | | | | |
| Mirror | 70 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones content | 1.00 | Large stones content | 1.00 | Large stones content | 1.00 |
| | | | | | | Depth to bedrock | 0.84 |
| | | | | | | Gravel | 0.21 |

Table 12.--Camp areas, picnic areas, and playgrounds--continued

| Map symbol and soil name | Pct. of map unit | Camp areas | | Picnic areas | | Playgrounds | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| MR: | | | | | | | |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| MsA: | | | | | | | |
| Mosca | 85 | Very limited | | Very limited | | Very limited | |
| | | Sodium content | 1.00 | Sodium content | 1.00 | Sodium content | 1.00 |
| | | Too sandy | 0.91 | Too sandy | 0.91 | Too sandy | 0.91 |
| | | Salinity | 0.50 | Salinity | 0.50 | Salinity | 0.50 |
| MtA: | | | | | | | |
| Mesita | 85 | Very limited | | Very limited | | Very limited | |
| | | Sodium content | 1.00 | Sodium content | 1.00 | Sodium content | 1.00 |
| | | Flooding | 1.00 | Salinity | 1.00 | Salinity | 1.00 |
| | | Salinity | 1.00 | Ponding | 1.00 | Ponding | 1.00 |
| | | Ponding | 1.00 | Slow water movement | 0.41 | Flooding | 0.60 |
| | | Slow water movement | 0.41 | | | Slow water movement | 0.41 |
| MuC: | | | | | | | |
| Morval | 65 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Dusty | 0.50 | Dusty | 0.50 | Slope | 1.00 |
| | | | | | | Gravel | 0.56 |
| | | | | | | Dusty | 0.50 |
| Uracca | 20 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Gravel | 0.02 | Gravel | 0.02 | Gravel | 1.00 |
| | | | | | | Slope | 1.00 |

Table 12.--Camp areas, picnic areas, and playgrounds--continued

| Map symbol and soil name | Pct. of map unit | Camp areas | | Picnic areas | | Playgrounds | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| MuE: | | | | | | | |
| Morval | 60 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Dusty | 0.50 | Dusty | 0.50 | Gravel | 0.56 |
| | | | | | | Dusty | 0.50 |
| Uracca | 20 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Gravel | 0.02 | Gravel | 0.02 | Gravel | 1.00 |
| PtC: | | | | | | | |
| Potrio | 85 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Gravel | 0.26 | Gravel | 0.26 | Gravel | 1.00 |
| | | | | | | Slope | 0.12 |
| RF: | | | | | | | |
| Rock outcrop | 50 | Not rated | | Not rated | | Not rated | |
| Rubble land | 50 | Not rated | | Not rated | | Not rated | |
| RrA: | | | | | | | |
| Trinchera | 85 | Not limited | | Not limited | | Not limited | |
| RrB: | | | | | | | |
| Trinchera | 85 | Not limited | | Not limited | | Not limited | |
| RrD: | | | | | | | |
| Trinchera | 85 | Not limited | | Not limited | | Very limited | |
| | | | | | | Slope | 1.00 |

Table 12.--Camp areas, picnic areas, and playgrounds--continued

| Map symbol and soil name | Pct. of map unit | Camp areas | | Picnic areas | | Playgrounds | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| ShA: | | | | | | | |
| Shawa | 85 | Not limited | | Not limited | | Not limited | |
| ShC: | | | | | | | |
| Shawa | 85 | Not limited | | Not limited | | Very limited | |
| | | | | | | Slope | 1.00 |
| SL: | | | | | | | |
| Scandard | 45 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones content | 1.00 | Large stones content | 1.00 | Large stones content | 1.00 |
| | | | | | | Depth to bedrock | 0.71 |
| Leadville | 30 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones content | 0.76 | Large stones content | 0.76 | Large stones content | 0.76 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| SpD: | | | | | | | |
| Sanpedro | 50 | Very limited | | Very limited | | Very limited | |
| | | Depth to bedrock | 1.00 | Depth to bedrock | 1.00 | Depth to bedrock | 1.00 |
| | | Dusty | 0.50 | Dusty | 0.50 | Gravel | 1.00 |
| | | Large stones content | 0.05 | Large stones content | 0.05 | Slope | 1.00 |
| | | | | | | Dusty | 0.50 |
| | | Gravel | 0.01 | Gravel | 0.01 | Large stones content | 0.05 |

Table 12.--Camp areas, picnic areas, and playgrounds--continued

| Map symbol and soil name | Pct. of map unit | Camp areas | | Picnic areas | | Playgrounds | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SpD: | | | | | | | |
| Potrio | 35 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Gravel | 0.26 | Gravel | 0.26 | Gravel | 1.00 |
| | | | | | | Slope | 1.00 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| SpF: | | | | | | | |
| Sanpedro | 50 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Depth to bedrock | 1.00 | Depth to bedrock | 1.00 | Depth to bedrock | 1.00 |
| | | Dusty | 0.50 | Dusty | 0.50 | Gravel | 1.00 |
| | | Large stones content | 0.05 | Large stones content | 0.05 | Dusty | 0.50 |
| | | Gravel | 0.01 | Gravel | 0.01 | Large stones content | 0.05 |
| Potrio | 30 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Gravel | 1.00 |
| | | Gravel | 0.26 | Gravel | 0.26 | Slope | 1.00 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| StB: | | | | | | | |
| Stunner | 85 | Somewhat limited | | Somewhat limited | | Somewhat limited | |
| | | Dusty | 0.50 | Dusty | 0.50 | Dusty | 0.50 |

Table 12.--Camp areas, picnic areas, and playgrounds--continued

| Map symbol and soil name | Pct. of map unit | Camp areas | | Picnic areas | | Playgrounds | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| StC: | | | | | | | |
| Stunner | 85 | Somewhat limited | | Somewhat limited | | Somewhat limited | |
| | | Dusty | 0.50 | Dusty | 0.50 | Slope | 0.88 |
| | | | | | | Dusty | 0.50 |
| SzF: | | | | | | | |
| Seitz | 60 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Slow water movement | 0.41 | Slow water movement | 0.41 | Slow water movement | 0.41 |
| | | Large stones content | 0.19 | Large stones content | 0.19 | Large stones content | 0.19 |
| Tolvar | 20 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones content | 1.00 | Large stones content | 1.00 | Large stones content | 1.00 |
| TlD: | | | | | | | |
| Tolvar | 65 | Very limited | | Very limited | | Very limited | |
| | | Large stones content | 1.00 | Large stones content | 1.00 | Slope | 1.00 |
| | | | | | | Large stones content | 1.00 |
| Laveta | 25 | Not limited | | Not limited | | Very limited | |
| | | | | | | Slope | 1.00 |
| | | | | | | Depth to bedrock | 0.80 |

Table 12.--Camp areas, picnic areas, and playgrounds--continued

| Map symbol and soil name | Pct. of map unit | Camp areas | | Picnic areas | | Playgrounds | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| TlF: | | | | | | | |
| Tolvar | 45 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones content | 1.00 | Large stones content | 1.00 | Large stones content | 1.00 |
| Laveta | 30 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | | | | | Depth to bedrock | 0.80 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| ToF: | | | | | | | |
| Tolvar | 85 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones content | 1.00 | Large stones content | 1.00 | Large stones content | 1.00 |
| TvD: | | | | | | | |
| Travelers | 70 | Very limited | | Very limited | | Very limited | |
| | | Depth to bedrock | 1.00 | Depth to bedrock | 1.00 | Gravel | 1.00 |
| | | Gravel | 0.15 | Gravel | 0.15 | Depth to bedrock | 1.00 |
| | | | | | | Slope | 0.88 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |

Table 12.--Camp areas, picnic areas, and playgrounds--continued

| Map symbol and soil name | Pct. of map unit | Camp areas | | Picnic areas | | Playgrounds | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| TvF: | | | | | | | |
| Travelers | 70 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Depth to bedrock | 1.00 | Depth to bedrock | 1.00 | Depth to bedrock | 1.00 |
| | | Gravel | 0.15 | Gravel | 0.15 | Gravel | 1.00 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| UmF: | | | | | | | |
| Uracca | 65 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Gravel | 0.02 | Gravel | 0.02 | Gravel | 1.00 |
| Morval | 20 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Dusty | 0.50 | Dusty | 0.50 | Gravel | 0.56 |
| | | | | | | Dusty | 0.50 |
| UrF: | | | | | | | |
| Uracca | 50 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Gravel | 0.02 | Gravel | 0.02 | Gravel | 1.00 |
| Culebra | 30 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Gravel | 1.00 |
| | | Depth to bedrock | 1.00 | Depth to bedrock | 1.00 | Depth to bedrock | 1.00 |
| | | Gravel | 0.98 | Gravel | 0.98 | Slope | 1.00 |
| | | Large stones content | 0.76 | Large stones content | 0.76 | Large stones content | 0.76 |

Table 12.--Camp areas, picnic areas, and playgrounds--continued

| Map symbol and soil name | Pct. of map unit | Camp areas | | Picnic areas | | Playgrounds | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| VeA: | | | | | | | |
| Ventero | 85 | Very limited | | Very limited | | Very limited | |
| | | Depth to saturated zone | 1.00 | Ponding | 1.00 | Depth to saturated zone | 1.00 |
| | | Flooding | 1.00 | Depth to saturated zone | 1.00 | Ponding | 1.00 |
| | | Ponding | 1.00 | Slow water movement | 0.21 | Flooding | 0.60 |
| | | Slow water movement | 0.21 | | | Slow water movement | 0.21 |
| VgA: | | | | | | | |
| Vastine | 45 | Very limited | | Somewhat limited | | Very limited | |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 0.94 | Depth to saturated zone | 1.00 |
| | | Flooding | 1.00 | Slow water movement | 0.21 | Flooding | 0.60 |
| | | Slow water movement | 0.21 | | | Slow water movement | 0.21 |
| Gerrard | 40 | Very limited | | Somewhat limited | | Very limited | |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 0.94 | Depth to saturated zone | 1.00 |
| | | Flooding | 1.00 | Slow water movement | 0.21 | Flooding | 0.60 |
| | | Slow water movement | 0.21 | | | Slow water movement | 0.21 |
| W: | | | | | | | |
| Water | 100 | Not rated | | Not rated | | Not rated | |

Table 13.--Paths, trails, and golf fairways

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

| Map symbol and soil name | Pct. of map unit | Paths and trails | | Off-road motorcycle trails | | Golf fairways | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| AmC: | | | | | | | |
| Amalia | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Gravel | 0.98 |
| | | | | | | Droughty | 0.39 |
| | | | | | | Large stones | 0.03 |
| AmE: | | | | | | | |
| Amalia | 85 | Somewhat limited | | Not limited | | Very limited | |
| | | Slope | 0.50 | | | Too steep | 1.00 |
| | | | | | | Gravel | 0.98 |
| | | | | | | Droughty | 0.39 |
| | | | | | | Large stones | 0.03 |
| Aq: | | | | | | | |
| Cumulic Cryaquolls | 85 | Very limited | | Very limited | | Very limited | |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Flooding | 1.00 |
| | | Ponding | 1.00 | Ponding | 1.00 | Depth to saturated zone | 1.00 |
| | | Flooding | 0.40 | Flooding | 0.40 | Ponding | 1.00 |
| BfA: | | | | | | | |
| Blanfort | 85 | Not limited | | Not limited | | Not limited | |

Table 13.--Paths, trails, and golf fairways--continued

| Map symbol and soil name | Pct. of map unit | Paths and trails | | Off-road motorcycle trails | | Golf fairways | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| BfD: | | | | | | | |
| Blanfort | 85 | Not limited | | Not limited | | Not limited | |
| CsA: | | | | | | | |
| Cososa | 85 | Somewhat limited | | Somewhat limited | | Not limited | |
| | | Too sandy | 0.95 | Too sandy | 0.95 | | |
| CsD: | | | | | | | |
| Cososa | 85 | Somewhat limited | | Somewhat limited | | Not limited | |
| | | Too sandy | 0.95 | Too sandy | 0.95 | | |
| CtA: | | | | | | | |
| Costilla | 85 | Somewhat limited | | Somewhat limited | | Somewhat limited | |
| | | Too sandy | 0.50 | Too sandy | 0.50 | Droughty | 0.99 |
| CuF: | | | | | | | |
| Comodore | 50 | Very limited | | Very limited | | Very limited | |
| | | Slope | 1.00 | Slope | 1.00 | Too steep | 1.00 |
| | | Dusty | 0.50 | Dusty | 0.50 | Droughty | 1.00 |
| | | Large stones content | 0.18 | Large stones content | 0.18 | Depth to bedrock | 1.00 |
| | | | | | | Large stones | 1.00 |
| | | | | | | Gravel | 0.31 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |

Table 13.--Paths, trails, and golf fairways--continued

| Map symbol and soil name | Pct. of map unit | Paths and trails | | Off-road motorcycle trails | | Golf fairways | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| CuF: | | | | | | | |
| Uracca | 20 | Very limited | | Somewhat limited | | Very limited | |
| | | Slope | 1.00 | Slope | 0.78 | Too steep | 1.00 |
| | | | | | | Droughty | 0.98 |
| | | | | | | Large stones | 0.88 |
| | | | | | | Gravel | 0.02 |
| DAM: | | | | | | | |
| Dam | 100 | Not rated | | Not rated | | Not rated | |
| DrD: | | | | | | | |
| Durreo | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Droughty | 0.57 |
| | | | | | | Gravel | 0.11 |
| | | | | | | Large stones | 0.05 |
| EaA: | | | | | | | |
| Eastdale | 85 | Very limited | | Very limited | | Very limited | |
| | | Ponding | 1.00 | Ponding | 1.00 | Ponding | 1.00 |
| | | | | | | Flooding | 0.60 |
| FLB: | | | | | | | |
| Fluvents | 80 | Very limited | | Very limited | | Very limited | |
| | | Too sandy | 1.00 | Too sandy | 1.00 | Flooding | 1.00 |
| | | Depth to saturated zone | 0.99 | Depth to saturated zone | 0.99 | Droughty | 1.00 |
| | | Flooding | 0.40 | Flooding | 0.40 | Too dense | 1.00 |
| | | | | | | Gravel | 1.00 |
| | | | | | | Depth to saturated zone | 0.99 |

Table 13.--Paths, trails, and golf fairways--continued

| Map symbol and soil name | Pct. of map unit | Paths and trails | | Off-road motorcycle trails | | Golf fairways | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| FtA: | | | | | | | |
| Fuertes | 85 | Not limited | | Not limited | | Not limited | |
| GmE: | | | | | | | |
| Aquic Dystrocryepts | 90 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Large stones content | 0.19 | Large stones content | 0.19 | Too steep | 1.00 |
| | | Slope | 0.18 | | | Large stones | 0.88 |
| Gn: | | | | | | | |
| Angostura | 90 | Very limited | | Very limited | | Very limited | |
| | | Large stones content | 1.00 | Large stones content | 1.00 | Too steep | 1.00 |
| | | Slope | 1.00 | Slope | 1.00 | Droughty | 0.04 |
| GP: | | | | | | | |
| Pits, gravel | 100 | Not rated | | Not rated | | Not rated | |
| GpA: | | | | | | | |
| Graypoint | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Droughty | 0.88 |
| GrA: | | | | | | | |
| Grayco | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Droughty | 0.51 |
| GrC: | | | | | | | |
| Grayco | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Droughty | 0.51 |

Table 13.--Paths, trails, and golf fairways--continued

| Map symbol and soil name | Pct. of map unit | Paths and trails | | Off-road motorcycle trails | | Golf fairways | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| Ho: | | | | | | | |
| Hooper, loamy sand-- | 70 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Too sandy | 0.86 | Too sandy | 0.86 | Sodium content | 1.00 |
| Hooper, clay loam--- | 20 | Very limited | | Very limited | | Very limited | |
| | | Ponding | 1.00 | Ponding | 1.00 | Sodium content | 1.00 |
| | | | | | | Ponding | 1.00 |
| Hp: | | | | | | | |
| Hooper, clay loam--- | 65 | Very limited | | Very limited | | Very limited | |
| | | Ponding | 1.00 | Ponding | 1.00 | Sodium content | 1.00 |
| | | | | | | Ponding | 1.00 |
| Hooper, loamy sand-- | 30 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Too sandy | 0.86 | Too sandy | 0.86 | Sodium content | 1.00 |
| KbA: | | | | | | | |
| Kibin--------------- | 85 | Not limited | | Not limited | | Not limited | |
| KbC: | | | | | | | |
| Kibin--------------- | 85 | Not limited | | Not limited | | Not limited | |
| LbF: | | | | | | | |
| Lambe--------------- | 60 | Very limited | | Very limited | | Very limited | |
| | | Slope | 1.00 | Slope | 1.00 | Too steep | 1.00 |
| | | Large stones content | 0.19 | Large stones content | 0.19 | Droughty | 0.73 |
| | | | | | | Gravel | 0.22 |
| | | | | | | Large stones | 0.08 |

Table 13.--Paths, trails, and golf fairways--continued

| Map symbol and soil name | Pct. of map unit | Paths and trails | | Off-road motorcycle trails | | Golf fairways | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| LbF: | | | | | | | |
| Woodhall | 30 | Not limited | | Not limited | | Very limited | |
| | | | | | | Droughty | 1.00 |
| | | | | | | Slope | 0.96 |
| | | | | | | Gravel | 0.48 |
| | | | | | | Depth to bedrock | 0.29 |
| | | | | | | Large stones | 0.05 |
| LeF: | | | | | | | |
| Fallriver | 65 | Very limited | | Very limited | | Very limited | |
| | | Slope | 1.00 | Slope | 1.00 | Too steep | 1.00 |
| | | | | | | Droughty | 0.75 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| LH: | | | | | | | |
| Leadville | 60 | Very limited | | Somewhat limited | | Very limited | |
| | | Slope | 1.00 | Large stones content | 0.76 | Too steep | 1.00 |
| | | Large stones content | 0.76 | Slope | 0.08 | Droughty | 0.02 |
| Howlett | 30 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Slope | 0.92 | Large stones content | 0.19 | Too steep | 1.00 |
| | | Large stones content | 0.19 | | | | |
| M: | | | | | | | |
| Pits, mine | 100 | Not rated | | Not rated | | Not rated | |

Table 13.--Paths, trails, and golf fairways--continued

| Map symbol and soil name | Pct. of map unit | Paths and trails | | Off-road motorcycle trails | | Golf fairways | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| McA: | | | | | | | |
| McGinty | 85 | Not limited | | Not limited | | Not limited | |
| McB: | | | | | | | |
| McGinty | 85 | Not limited | | Not limited | | Not limited | |
| McC: | | | | | | | |
| McGinty | 85 | Not limited | | Not limited | | Not limited | |
| MR: | | | | | | | |
| Mirror | 70 | Very limited | | Very limited | | Very limited | |
| | | Slope | 1.00 | Slope | 1.00 | Too steep | 1.00 |
| | | Large stones content | 1.00 | Large stones content | 1.00 | Large stones | 1.00 |
| | | | | | | Droughty | 1.00 |
| | | | | | | Depth to bedrock | 0.84 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| MsA: | | | | | | | |
| Mosca | 85 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Too sandy | 0.91 | Too sandy | 0.91 | Sodium content | 1.00 |
| | | | | | | Droughty | 1.00 |
| | | | | | | Salinity | 0.50 |

Table 13.--Paths, trails, and golf fairways--continued

| Map symbol and soil name | Pct. of map unit | Paths and trails | | Off-road motorcycle trails | | Golf fairways | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| MtA: | | | | | | | |
| Mesita | 85 | Very limited | | Very limited | | Very limited | |
| | | Ponding | 1.00 | Ponding | 1.00 | Sodium content | 1.00 |
| | | | | | | Salinity | 1.00 |
| | | | | | | Ponding | 1.00 |
| | | | | | | Flooding | 0.60 |
| MuC: | | | | | | | |
| Morval | 65 | Somewhat limited | | Somewhat limited | | Not limited | |
| | | Dusty | 0.50 | Dusty | 0.50 | | |
| Uracca | 20 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Droughty | 0.98 |
| | | | | | | Large stones | 0.88 |
| | | | | | | Gravel | 0.02 |
| MuE: | | | | | | | |
| Morval | 60 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Slope | 0.50 | Dusty | 0.50 | Too steep | 1.00 |
| | | Dusty | 0.50 | | | | |
| Uracca | 20 | Very limited | | Somewhat limited | | Very limited | |
| | | Slope | 1.00 | Slope | 0.78 | Too steep | 1.00 |
| | | | | | | Droughty | 0.98 |
| | | | | | | Large stones | 0.88 |
| | | | | | | Gravel | 0.02 |

Table 13.--Paths, trails, and golf fairways--continued

| Map symbol and soil name | Pct. of map unit | Paths and trails | | Off-road motorcycle trails | | Golf fairways | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| PtC: | | | | | | | |
| Potrio | 85 | Not limited | | Not limited | | Somewhat limited<br>Gravel | 0.26 |
| RF: | | | | | | | |
| Rock outcrop | 50 | Not rated | | Not rated | | Not rated | |
| Rubble land | 50 | Not rated | | Not rated | | Not rated | |
| RrA: | | | | | | | |
| Trinchera | 85 | Not limited | | Not limited | | Very limited<br>Carbonate content | 1.00 |
| RrB: | | | | | | | |
| Trinchera | 85 | Not limited | | Not limited | | Very limited<br>Carbonate content | 1.00 |
| RrD: | | | | | | | |
| Trinchera | 85 | Not limited | | Not limited | | Very limited<br>Carbonate content | 1.00 |
| ShA: | | | | | | | |
| Shawa | 85 | Not limited | | Not limited | | Not limited | |
| ShC: | | | | | | | |
| Shawa | 85 | Not limited | | Not limited | | Not limited | |

Table 13.--Paths, trails, and golf fairways--continued

| Map symbol and soil name | Pct. of map unit | Paths and trails | | Off-road motorcycle trails | | Golf fairways | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SL: | | | | | | | |
| Scandard | 45 | Very limited | | Very limited | | Very limited | |
| | | Slope | 1.00 | Slope | 1.00 | Too steep | 1.00 |
| | | Large stones content | 1.00 | Large stones content | 1.00 | Droughty | 0.96 |
| | | | | | | Depth to bedrock | 0.71 |
| Leadville | 30 | Very limited | | Very limited | | Very limited | |
| | | Slope | 1.00 | Slope | 1.00 | Too steep | 1.00 |
| | | Large stones content | 0.76 | Large stones content | 0.76 | Droughty | 0.02 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| SpD: | | | | | | | |
| Sanpedro | 50 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Dusty | 0.50 | Dusty | 0.50 | Droughty | 1.00 |
| | | Large stones content | 0.05 | Large stones content | 0.05 | Depth to bedrock | 1.00 |
| | | | | | | Large stones | 1.00 |
| | | | | | | Carbonate content | 1.00 |
| | | | | | | Gravel | 0.01 |
| Potrio | 35 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Gravel | 0.26 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |

Table 13.--Paths, trails, and golf fairways--continued

| Map symbol and soil name | Pct. of map unit | Paths and trails | | Off-road motorcycle trails | | Golf fairways | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SpF: | | | | | | | |
| Sanpedro | 50 | Very limited | | Somewhat limited | | Very limited | |
| | | Slope | 1.00 | Slope | 0.78 | Droughty | 1.00 |
| | | Dusty | 0.50 | Dusty | 0.50 | Depth to bedrock | 1.00 |
| | | Large stones content | 0.05 | Large stones content | 0.05 | Large stones | 1.00 |
| | | | | | | Too steep | 1.00 |
| Potrio | 30 | Not limited | | Not limited | | Very limited | |
| | | | | | | Too steep | 1.00 |
| | | | | | | Gravel | 0.26 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| StB: | | | | | | | |
| Stunner | 85 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Dusty | 0.50 | Dusty | 0.50 | Carbonate content | 1.00 |
| StC: | | | | | | | |
| Stunner | 85 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Dusty | 0.50 | Dusty | 0.50 | Carbonate content | 1.00 |
| SzF: | | | | | | | |
| Seitz | 60 | Very limited | | Somewhat limited | | Very limited | |
| | | Slope | 1.00 | Slope | 0.96 | Too steep | 1.00 |
| | | Large stones content | 0.19 | Large stones content | 0.19 | Droughty | 0.02 |

Table 13.--Paths, trails, and golf fairways--continued

| Map symbol and soil name | Pct. of map unit | Paths and trails | | Off-road motorcycle trails | | Golf fairways | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SzF: | | | | | | | |
| Tolvar | 20 | Very limited | | Very limited | | Very limited | |
| | | Large stones content | 1.00 | Large stones content | 1.00 | Too steep | 1.00 |
| | | | | | | Droughty | 0.10 |
| | | Slope | 1.00 | Slope | 0.78 | | |
| TlD: | | | | | | | |
| Tolvar | 65 | Very limited | | Very limited | | Somewhat limited | |
| | | Large stones content | 1.00 | Large stones content | 1.00 | Droughty | 0.10 |
| Laveta | 25 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Droughty | 0.94 |
| | | | | | | Depth to bedrock | 0.80 |
| TlF: | | | | | | | |
| Tolvar | 45 | Very limited | | Very limited | | Very limited | |
| | | Large stones content | 1.00 | Large stones content | 1.00 | Too steep | 1.00 |
| | | | | | | Droughty | 0.10 |
| | | Slope | 1.00 | Slope | 0.78 | | |
| Laveta | 30 | Not limited | | Not limited | | Very limited | |
| | | | | | | Too steep | 1.00 |
| | | | | | | Droughty | 0.94 |
| | | | | | | Depth to bedrock | 0.80 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |

Table 13.--Paths, trails, and golf fairways--continued

| Map symbol and soil name | Pct. of map unit | Paths and trails | | Off-road motorcycle trails | | Golf fairways | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| ToF: | | | | | | | |
| Tolvar | 85 | Very limited | | Very limited | | Very limited | |
| | | Large stones content | 1.00 | Large stones content | 1.00 | Too steep | 1.00 |
| | | Slope | 1.00 | Slope | 0.78 | Droughty | 0.10 |
| TvD: | | | | | | | |
| Travelers | 70 | Not limited | | Not limited | | Very limited | |
| | | | | | | Droughty | 1.00 |
| | | | | | | Depth to bedrock | 1.00 |
| | | | | | | Gravel | 0.15 |
| | | | | | | Large stones | 0.05 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| TvF: | | | | | | | |
| Travelers | 70 | Somewhat limited | | Not limited | | Very limited | |
| | | Slope | 0.50 | | | Droughty | 1.00 |
| | | | | | | Depth to bedrock | 1.00 |
| | | | | | | Too steep | 1.00 |
| | | | | | | Gravel | 0.15 |
| | | | | | | Large stones | 0.05 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |

Table 13.--Paths, trails, and golf fairways--continued

| Map symbol and soil name | Pct. of map unit | Paths and trails | | Off-road motorcycle trails | | Golf fairways | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| UmF: | | | | | | | |
| Uracca | 65 | Very limited | | Somewhat limited | | Very limited | |
| | | Slope | 1.00 | Slope | 0.78 | Too steep | 1.00 |
| | | | | | | Droughty | 0.98 |
| | | | | | | Large stones | 0.88 |
| | | | | | | Gravel | 0.02 |
| Morval | 20 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Slope | 0.50 | Dusty | 0.50 | Too steep | 1.00 |
| | | Dusty | 0.50 | | | | |
| UrF: | | | | | | | |
| Uracca | 50 | Very limited | | Somewhat limited | | Very limited | |
| | | Slope | 1.00 | Slope | 0.78 | Too steep | 1.00 |
| | | | | | | Droughty | 0.98 |
| | | | | | | Large stones | 0.88 |
| | | | | | | Gravel | 0.02 |
| Culebra | 30 | Very limited | | Very limited | | Very limited | |
| | | Slope | 1.00 | Slope | 1.00 | Droughty | 1.00 |
| | | Large stones content | 0.76 | Large stones content | 0.76 | Depth to bedrock | 1.00 |
| | | | | | | Too steep | 1.00 |
| | | | | | | Gravel | 0.98 |
| | | | | | | Large stones | 0.03 |

Table 13.--Paths, trails, and golf fairways--continued

| Map symbol and soil name | Pct. of map unit | Paths and trails | | Off-road motorcycle trails | | Golf fairways | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| VeA: | | | | | | | |
| Ventero | 85 | Very limited | | Very limited | | Very limited | |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Ponding | 1.00 |
| | | Ponding | 1.00 | Ponding | 1.00 | Depth to saturated zone | 1.00 |
| | | | | | | Flooding | 0.60 |
| VgA: | | | | | | | |
| Vastine | 45 | Somewhat limited | | Somewhat limited | | Somewhat limited | |
| | | Depth to saturated zone | 0.86 | Depth to saturated zone | 0.86 | Depth to saturated zone | 0.94 |
| | | | | | | Flooding | 0.60 |
| Gerrard | 40 | Somewhat limited | | Somewhat limited | | Somewhat limited | |
| | | Depth to saturated zone | 0.86 | Depth to saturated zone | 0.86 | Depth to saturated zone | 0.94 |
| | | | | | | Flooding | 0.60 |
| | | | | | | Droughty | 0.05 |
| W: | | | | | | | |
| Water | 100 | Not rated | | Not rated | | Not rated | |

Table 14.--Dwellings and small commercial buildings

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

| Map symbol and soil name | Pct. of map unit | Dwellings without basements | | Dwellings with basements | | Small commercial buildings | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| AmC: | | | | | | | |
| Amalia | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Slope | 0.50 |
| AmE: | | | | | | | |
| Amalia | 85 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| Aq: | | | | | | | |
| Cumulic Cryaquolls | 85 | Very limited | | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 | Flooding | 1.00 |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 |
| | | Ponding | 1.00 | Ponding | 1.00 | Ponding | 1.00 |
| BfA: | | | | | | | |
| Blanfort | 85 | Not limited | | Not limited | | Not limited | |
| BfD: | | | | | | | |
| Blanfort | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Slope | 0.50 |
| CsA: | | | | | | | |
| Cososa | 85 | Not limited | | Not limited | | Not limited | |

Table 14.--Dwellings and small commercial buildings--continued

| Map symbol and soil name | Pct. of map unit | Dwellings without basements | | Dwellings with basements | | Small commercial buildings | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| CsD: | | | | | | | |
| Cososa | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Slope | 0.50 |
| CtA: | | | | | | | |
| Costilla | 85 | Not limited | | Not limited | | Not limited | |
| CuF: | | | | | | | |
| Comodore | 50 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 1.00 |
| | | Large stones | 0.99 | Large stones | 0.99 | Large stones | 0.99 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| Uracca | 20 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones | 0.53 | Large stones | 0.53 | Large stones | 0.53 |
| DAM: | | | | | | | |
| Dam | 100 | Not rated | | Not rated | | Not rated | |
| DrD: | | | | | | | |
| Durreo | 85 | Somewhat limited | | Somewhat limited | | Somewhat limited | |
| | | Large stones | 0.01 | Large stones | 0.01 | Slope | 0.12 |
| | | | | | | Large stones | 0.01 |

Table 14.--Dwellings and small commercial buildings--continued

| Map symbol and soil name | Pct. of map unit | Dwellings without basements | | Dwellings with basements | | Small commercial buildings | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| EaA: | | | | | | | |
| Eastdale | 85 | Very limited | | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 | Flooding | 1.00 |
| | | Ponding | 1.00 | Ponding | 1.00 | Ponding | 1.00 |
| | | Shrink-swell | 0.27 | | | Shrink-swell | 0.27 |
| FLB: | | | | | | | |
| Fluvents | 80 | Very limited | | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 | Flooding | 1.00 |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 |
| FtA: | | | | | | | |
| Fuertes | 85 | Somewhat limited | | Somewhat limited | | Somewhat limited | |
| | | Shrink-swell | 0.01 | Depth to saturated zone | 0.99 | Shrink-swell | 0.01 |
| | | | | Shrink-swell | 0.01 | | |
| GmE: | | | | | | | |
| Aquic Dystrocryepts | 90 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | | | Depth to saturated zone | 0.99 | | |
| Gn: | | | | | | | |
| Angostura | 90 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones | 0.14 | Large stones | 0.14 | Large stones | 0.14 |

Table 14.--Dwellings and small commercial buildings--continued

| Map symbol and soil name | Pct. of map unit | Dwellings without basements | | Dwellings with basements | | Small commercial buildings | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| GP: | | | | | | | |
| Pits, gravel | 100 | Not rated | | Not rated | | Not rated | |
| GpA: | | | | | | | |
| Graypoint | 85 | Not limited | | Not limited | | Not limited | |
| GrA: | | | | | | | |
| Grayco | 85 | Not limited | | Not limited | | Not limited | |
| GrC: | | | | | | | |
| Grayco | 85 | Not limited | | Not limited | | Not limited | |
| Ho: | | | | | | | |
| Hooper, loamy sand | 70 | Not limited | | Somewhat limited<br>Depth to saturated zone | 0.15 | Not limited | |
| Hooper, clay loam | 20 | Very limited<br>Ponding<br>Shrink-swell | 1.00<br>0.73 | Very limited<br>Ponding<br>Depth to saturated zone | 1.00<br>0.15 | Very limited<br>Ponding<br>Shrink-swell | 1.00<br>0.73 |
| Hp: | | | | | | | |
| Hooper, clay loam | 65 | Very limited<br>Ponding<br>Shrink-swell | 1.00<br>0.73 | Very limited<br>Ponding<br>Depth to saturated zone | 1.00<br>0.15 | Very limited<br>Ponding<br>Shrink-swell | 1.00<br>0.73 |

Table 14.--Dwellings and small commercial buildings--continued

| Map symbol and soil name | Pct. of map unit | Dwellings without basements | | Dwellings with basements | | Small commercial buildings | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| Hp: | | | | | | | |
| Hooper, loamy sand-- | 30 | Not limited | | Somewhat limited<br>Depth to saturated zone | 0.15 | Not limited | |
| KbA: | | | | | | | |
| Kibin | 85 | Somewhat limited<br>Shrink-swell | 0.89 | Not limited | | Somewhat limited<br>Shrink-swell | 0.89 |
| KbC: | | | | | | | |
| Kibin | 85 | Somewhat limited<br>Shrink-swell | 0.89 | Not limited | | Somewhat limited<br>Shrink-swell | 0.89 |
| LbF: | | | | | | | |
| Lambe | 60 | Very limited<br>Too steep | 1.00 | Very limited<br>Too steep | 1.00 | Very limited<br>Slope | 1.00 |
| Woodhall | 30 | Somewhat limited<br>Slope<br>Depth to hard bedrock<br>Large stones | 0.96<br>0.29<br>0.18 | Very limited<br>Depth to hard bedrock<br>Slope<br>Large stones | 1.00<br>0.96<br>0.18 | Very limited<br>Slope<br>Depth to hard bedrock<br>Large stones | 1.00<br>0.29<br>0.18 |
| LeF: | | | | | | | |
| Fallriver | 65 | Very limited<br>Too steep | 1.00 | Very limited<br>Too steep | 1.00 | Very limited<br>Slope | 1.00 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |

Table 14.--Dwellings and small commercial buildings--continued

| Map symbol and soil name | Pct. of map unit | Dwellings without basements | | Dwellings with basements | | Small commercial buildings | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| LH: | | | | | | | |
| Leadville | 60 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones | 0.25 | Large stones | 0.25 | Large stones | 0.25 |
| Howlett | 30 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| M: | | | | | | | |
| Pits, mine | 100 | Not rated | | Not rated | | Not rated | |
| McA: | | | | | | | |
| McGinty | 85 | Not limited | | Not limited | | Not limited | |
| McB: | | | | | | | |
| McGinty | 85 | Not limited | | Not limited | | Not limited | |
| McC: | | | | | | | |
| McGinty | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Slope | 0.12 |
| MR: | | | | | | | |
| Mirror | 70 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones | 1.00 | Depth to hard bedrock | 1.00 | Large stones | 1.00 |
| | | Depth to hard bedrock | 0.84 | Large stones | 1.00 | Depth to hard bedrock | 0.84 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |

Table 14.--Dwellings and small commercial buildings--continued

| Map symbol and soil name | Pct. of map unit | Dwellings without basements | | Dwellings with basements | | Small commercial buildings | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| MsA: | | | | | | | |
| Mosca | 85 | Not limited | | Not limited | | Not limited | |
| MtA: | | | | | | | |
| Mesita | 85 | Very limited | | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 | Flooding | 1.00 |
| | | Ponding | 1.00 | Ponding | 1.00 | Ponding | 1.00 |
| | | Shrink-swell | 0.78 | Shrink-swell | 0.78 | Shrink-swell | 0.78 |
| MuC: | | | | | | | |
| Morval | 65 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Slope | 0.50 |
| Uracca | 20 | Somewhat limited | | Somewhat limited | | Somewhat limited | |
| | | Large stones | 0.53 | Large stones | 0.53 | Large stones | 0.53 |
| | | | | | | Slope | 0.50 |
| MuE: | | | | | | | |
| Morval | 60 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| Uracca | 20 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones | 0.53 | Large stones | 0.53 | Large stones | 0.53 |
| PtC: | | | | | | | |
| Potrio | 85 | Not limited | | Somewhat limited | | Not limited | |
| | | | | Depth to hard bedrock | 0.96 | | |

Table 14.--Dwellings and small commercial buildings--continued

| Map symbol and soil name | Pct. of map unit | Dwellings without basements | | Dwellings with basements | | Small commercial buildings | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| RF: | | | | | | | |
| Rock outcrop | 50 | Not rated | | Not rated | | Not rated | |
| Rubble land | 50 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones | 1.00 | Large stones | 1.00 | Large stones | 1.00 |
| RrA: | | | | | | | |
| Trinchera | 85 | Not limited | | Not limited | | Not limited | |
| RrB: | | | | | | | |
| Trinchera | 85 | Not limited | | Not limited | | Not limited | |
| RrD: | | | | | | | |
| Trinchera | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Slope | 0.50 |
| ShA: | | | | | | | |
| Shawa | 85 | Somewhat limited | | Somewhat limited | | Somewhat limited | |
| | | Shrink-swell | 0.11 | Shrink-swell | 0.11 | Shrink-swell | 0.11 |
| ShC: | | | | | | | |
| Shawa | 85 | Somewhat limited | | Somewhat limited | | Somewhat limited | |
| | | Shrink-swell | 0.11 | Shrink-swell | 0.11 | Slope | 0.88 |
| | | | | | | Shrink-swell | 0.11 |

Table 14.--Dwellings and small commercial buildings--continued

| Map symbol and soil name | Pct. of map unit | Dwellings without basements | | Dwellings with basements | | Small commercial buildings | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SL: | | | | | | | |
| Scandard | 45 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Depth to hard bedrock | 0.71 | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 0.71 |
| Leadville | 30 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones | 0.25 | Large stones | 0.25 | Large stones | 0.25 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| SpD: | | | | | | | |
| Sanpedro | 50 | Very limited | | Very limited | | Very limited | |
| | | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 1.00 |
| | | Large stones | 0.90 | Large stones | 0.90 | Large stones | 0.90 |
| | | | | | | Slope | 0.50 |
| Potrio | 35 | Not limited | | Somewhat limited | | Somewhat limited | |
| | | | | Depth to hard bedrock | 0.96 | Slope | 0.50 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |

Table 14.--Dwellings and small commercial buildings--continued

| Map symbol and soil name | Pct. of map unit | Dwellings without basements | | Dwellings with basements | | Small commercial buildings | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SpF: | | | | | | | |
| Sanpedro | 50 | Very limited | | Very limited | | Very limited | |
| | | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 1.00 | Slope | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | Depth to hard bedrock | 1.00 |
| | | Large stones | 0.90 | Large stones | 0.90 | Large stones | 0.90 |
| Potrio | 30 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | | | Depth to hard bedrock | 0.96 | | |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| StB: | | | | | | | |
| Stunner | 85 | Not limited | | Not limited | | Not limited | |
| StC: | | | | | | | |
| Stunner | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Slope | 0.12 |
| SzF: | | | | | | | |
| Seitz | 60 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Shrink-swell | 0.01 | | | Shrink-swell | 0.01 |
| Tolvar | 20 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |

Table 14.--Dwellings and small commercial buildings--continued

| Map symbol and soil name | Pct. of map unit | Dwellings without basements | | Dwellings with basements | | Small commercial buildings | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| TlD: | | | | | | | |
| Tolvar | 65 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Slope | 0.50 |
| Laveta | 25 | Somewhat limited | | Very limited | | Somewhat limited | |
| | | Depth to hard bedrock | 0.79 | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 0.79 |
| | | | | | | Slope | 0.50 |
| TlF: | | | | | | | |
| Tolvar | 45 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| Laveta | 30 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Depth to hard bedrock | 1.00 | Slope | 1.00 |
| | | Depth to hard bedrock | 0.79 | Too steep | 1.00 | Depth to hard bedrock | 0.79 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| ToF: | | | | | | | |
| Tolvar | 85 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| TvD: | | | | | | | |
| Travelers | 70 | Very limited | | Very limited | | Very limited | |
| | | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 1.00 |
| | | | | | | Slope | 0.12 |

Table 14.--Dwellings and small commercial buildings--continued

| Map symbol and soil name | Pct. of map unit | Dwellings without basements | | Dwellings with basements | | Small commercial buildings | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| TvD: | | | | | | | |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| TvF: | | | | | | | |
| Travelers | 70 | Very limited | | Very limited | | Very limited | |
| | | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 1.00 | Slope | 1.00 |
| | | | | | | Depth to hard bedrock | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | | |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| UmF: | | | | | | | |
| Uracca | 65 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones | 0.53 | Large stones | 0.53 | Large stones | 0.53 |
| Morval | 20 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| UrF: | | | | | | | |
| Uracca | 50 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones | 0.53 | Large stones | 0.53 | Large stones | 0.53 |
| Culebra | 30 | Very limited | | Very limited | | Very limited | |
| | | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | Slope | 1.00 |

Table 14.--Dwellings and small commercial buildings--continued

| Map symbol and soil name | Pct. of map unit | Dwellings without basements | | Dwellings with basements | | Small commercial buildings | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| VeA: | | | | | | | |
| Ventero | 85 | Very limited | | Very limited | | Very limited | |
| | | Ponding | 1.00 | Ponding | 1.00 | Ponding | 1.00 |
| | | Flooding | 1.00 | Flooding | 1.00 | Flooding | 1.00 |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 |
| | | Shrink-swell | 0.27 | | | Shrink-swell | 0.27 |
| VgA: | | | | | | | |
| Vastine | 45 | Very limited | | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 | Flooding | 1.00 |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 |
| Gerrard | 40 | Very limited | | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 | Flooding | 1.00 |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 |
| W: | | | | | | | |
| Water | 100 | Not rated | | Not rated | | Not rated | |

**Table 15.--Roads and streets, shallow excavations, and lawns and landscaping**

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

| Map symbol and soil name | Pct. of map unit | Local roads and streets | | Shallow excavations | | Lawns and landscaping | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| AmC: | | | | | | | |
| Amalia | 85 | Somewhat limited | | Very limited | | Somewhat limited | |
| | | Frost action | 0.50 | Cutbanks cave | 1.00 | Gravel | 0.98 |
| | | | | | | Droughty | 0.39 |
| | | | | | | Large stones | 0.03 |
| AmE: | | | | | | | |
| Amalia | 85 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Cutbanks cave | 1.00 | Too steep | 1.00 |
| | | Frost action | 0.50 | Too steep | 1.00 | Gravel | 0.98 |
| | | | | | | Droughty | 0.39 |
| | | | | | | Large stones | 0.03 |
| Aq: | | | | | | | |
| Cumulic Cryaquolls | 85 | Very limited | | Very limited | | Very limited | |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Flooding | 1.00 |
| | | Frost action | 1.00 | Cutbanks cave | 1.00 | Depth to saturated zone | 1.00 |
| | | Flooding | 1.00 | Ponding | 1.00 | Ponding | 1.00 |
| | | Ponding | 1.00 | Flooding | 0.80 | | |
| BfA: | | | | | | | |
| Blanfort | 85 | Somewhat limited | | Somewhat limited | | Not limited | |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | | |

Table 15.--Roads and streets, shallow excavations, and lawns and landscaping--continued

| Map symbol and soil name | Pct. of map unit | Local roads and streets | | Shallow excavations | | Lawns and landscaping | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| BfD: | | | | | | | |
| Blanfort | 85 | Somewhat limited | | Somewhat limited | | Not limited | |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | | |
| CsA: | | | | | | | |
| Cososa | 85 | Somewhat limited | | Very limited | | Not limited | |
| | | Frost action | 0.50 | Cutbanks cave | 1.00 | | |
| CsD: | | | | | | | |
| Cososa | 85 | Somewhat limited | | Very limited | | Not limited | |
| | | Frost action | 0.50 | Cutbanks cave | 1.00 | | |
| CtA: | | | | | | | |
| Costilla | 85 | Not limited | | Very limited | | Somewhat limited | |
| | | | | Cutbanks cave | 1.00 | Droughty | 0.99 |
| CuF: | | | | | | | |
| Comodore | 50 | Very limited | | Very limited | | Very limited | |
| | | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 1.00 | Too steep | 1.00 |
| | | | | | | Droughty | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | Depth to bedrock | 1.00 |
| | | Large stones | 0.99 | Large stones | 0.99 | Large stones | 1.00 |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Gravel | 0.31 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |

Table 15.--Roads and streets, shallow excavations, and lawns and landscaping--continued

| Map symbol and soil name | Pct. of map unit | Local roads and streets | | Shallow excavations | | Lawns and landscaping | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| CuF: | | | | | | | |
| Uracca | 20 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Large stones | 0.53 | Large stones | 0.53 | Droughty | 0.98 |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Large stones | 0.88 |
| | | | | | | Gravel | 0.02 |
| DAM: | | | | | | | |
| Dam | 100 | Not rated | | Not rated | | Not rated | |
| DrD: | | | | | | | |
| Durreo | 85 | Somewhat limited | | Somewhat limited | | Somewhat limited | |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Droughty | 0.57 |
| | | Large stones | 0.01 | Large stones | 0.01 | Gravel | 0.11 |
| | | | | | | Large stones | 0.05 |
| EaA: | | | | | | | |
| Eastdale | 85 | Very limited | | Very limited | | Very limited | |
| | | Flooding | 1.00 | Ponding | 1.00 | Ponding | 1.00 |
| | | Low strength | 1.00 | Flooding | 0.60 | Flooding | 0.60 |
| | | Ponding | 1.00 | Cutbanks cave | 0.10 | | |
| | | Frost action | 0.50 | | | | |
| | | Shrink-swell | 0.27 | | | | |

Table 15.--Roads and streets, shallow excavations, and lawns and landscaping--continued

| Map symbol and soil name | Pct. of map unit | Local roads and streets | | Shallow excavations | | Lawns and landscaping | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| FLB: | | | | | | | |
| Fluvents | 80 | Very limited | | Very limited | | Very limited | |
| | | Flooding | 1.00 | Depth to saturated zone | 1.00 | Flooding | 1.00 |
| | | Depth to saturated zone | 0.99 | Cutbanks cave | 1.00 | Droughty | 1.00 |
| | | | | Flooding | 0.80 | Too dense | 1.00 |
| | | | | Dense layer | 0.50 | Gravel | 1.00 |
| | | | | | | Depth to saturated zone | 0.99 |
| FtA: | | | | | | | |
| Fuertes | 85 | Very limited | | Very limited | | Not limited | |
| | | Low strength | 1.00 | Cutbanks cave | 1.00 | | |
| | | Frost action | 0.50 | Depth to saturated zone | 0.99 | | |
| | | Shrink-swell | 0.01 | | | | |
| GmE: | | | | | | | |
| Aquic Dystrocryepts | 90 | Very limited | | Very limited | | Very limited | |
| | | Frost action | 1.00 | Cutbanks cave | 1.00 | Too steep | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | Large stones | 0.88 |
| | | | | Depth to saturated zone | 0.99 | | |
| Gn: | | | | | | | |
| Angostura | 90 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Frost action | 0.50 | Cutbanks cave | 1.00 | Droughty | 0.04 |
| | | Large stones | 0.14 | Large stones | 0.14 | | |

Table 15.--Roads and streets, shallow excavations, and lawns and landscaping--continued

| Map symbol and soil name | Pct. of map unit | Local roads and streets | | Shallow excavations | | Lawns and landscaping | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| GP: | | | | | | | |
| Pits, gravel | 100 | Not rated | | Not rated | | Not rated | |
| GpA: | | | | | | | |
| Graypoint | 85 | Somewhat limited | | Very limited | | Somewhat limited | |
| | | Frost action | 0.50 | Cutbanks cave | 1.00 | Droughty | 0.88 |
| GrA: | | | | | | | |
| Grayco | 85 | Somewhat limited | | Very limited | | Somewhat limited | |
| | | Frost action | 0.50 | Cutbanks cave | 1.00 | Droughty | 0.51 |
| GrC: | | | | | | | |
| Grayco | 85 | Somewhat limited | | Very limited | | Somewhat limited | |
| | | Frost action | 0.50 | Cutbanks cave | 1.00 | Droughty | 0.51 |
| Ho: | | | | | | | |
| Hooper, loamy sand | 70 | Somewhat limited | | Very limited | | Very limited | |
| | | Frost action | 0.50 | Cutbanks cave | 1.00 | Sodium content | 1.00 |
| | | | | Depth to saturated zone | 0.15 | | |
| Hooper, clay loam | 20 | Very limited | | Very limited | | Very limited | |
| | | Low strength | 1.00 | Cutbanks cave | 1.00 | Sodium content | 1.00 |
| | | Ponding | 1.00 | Ponding | 1.00 | Ponding | 1.00 |
| | | Shrink-swell | 0.73 | Depth to saturated zone | 0.15 | | |
| | | Frost action | 0.50 | | | | |

Table 15.--Roads and streets, shallow excavations, and lawns and landscaping--continued

| Map symbol and soil name | Pct. of map unit | Local roads and streets | | Shallow excavations | | Lawns and landscaping | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| Hp: | | | | | | | |
| Hooper, clay loam--- | 65 | Very limited | | Very limited | | Very limited | |
| | | Low strength | 1.00 | Cutbanks cave | 1.00 | Sodium content | 1.00 |
| | | Ponding | 1.00 | Ponding | 1.00 | Ponding | 1.00 |
| | | Shrink-swell | 0.73 | Depth to saturated zone | 0.15 | | |
| Hooper, loamy sand-- | 30 | Not limited | | Very limited | | Very limited | |
| | | | | Cutbanks cave | 1.00 | Sodium content | 1.00 |
| | | | | Depth to saturated zone | 0.15 | | |
| KbA: | | | | | | | |
| Kibin--- | 85 | Very limited | | Very limited | | Not limited | |
| | | Low strength | 1.00 | Cutbanks cave | 1.00 | | |
| | | Shrink-swell | 0.89 | | | | |
| | | Frost action | 0.50 | | | | |
| KbC: | | | | | | | |
| Kibin--- | 85 | Very limited | | Very limited | | Not limited | |
| | | Low strength | 1.00 | Cutbanks cave | 1.00 | | |
| | | Shrink-swell | 0.89 | | | | |
| | | Frost action | 0.50 | | | | |

Table 15.--Roads and streets, shallow excavations, and lawns and landscaping--continued

| Map symbol and soil name | Pct. of map unit | Local roads and streets | | Shallow excavations | | Lawns and landscaping | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| LbF: | | | | | | | |
| Lambe | 60 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Cutbanks cave | 1.00 | Too steep | 1.00 |
| | | Frost action | 0.50 | Too steep | 1.00 | Droughty | 0.73 |
| | | | | | | Gravel | 0.22 |
| | | | | | | Large stones | 0.08 |
| Woodhall | 30 | Somewhat limited | | Very limited | | Very limited | |
| | | Slope | 0.96 | Depth to hard bedrock | 1.00 | Droughty | 1.00 |
| | | Frost action | 0.50 | | | Slope | 0.96 |
| | | Depth to hard bedrock | 0.29 | Slope | 0.96 | Gravel | 0.48 |
| | | | | Large stones | 0.18 | Depth to bedrock | 0.29 |
| | | Large stones | 0.18 | Cutbanks cave | 0.10 | Large stones | 0.05 |
| LeF: | | | | | | | |
| Fallriver | 65 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Cutbanks cave | 1.00 | Too steep | 1.00 |
| | | Frost action | 0.50 | Too steep | 1.00 | Droughty | 0.75 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| LH: | | | | | | | |
| Leadville | 60 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Frost action | 0.50 | Large stones | 0.25 | Droughty | 0.02 |
| | | Large stones | 0.25 | Cutbanks cave | 0.10 | | |

Table 15.--Roads and streets, shallow excavations, and lawns and landscaping--continued

| Map symbol and soil name | Pct. of map unit | Local roads and streets | | Shallow excavations | | Lawns and landscaping | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| LH: | | | | | | | |
| Howlett | 30 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Cutbanks cave | 1.00 | Too steep | 1.00 |
| | | Frost action | 0.50 | Too steep | 1.00 | | |
| M: | | | | | | | |
| Pits, mine | 100 | Not rated | | Not rated | | Not rated | |
| McA: | | | | | | | |
| McGinty | 85 | Somewhat limited | | Somewhat limited | | Not limited | |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | | |
| McB: | | | | | | | |
| McGinty | 85 | Somewhat limited | | Somewhat limited | | Not limited | |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | | |
| McC: | | | | | | | |
| McGinty | 85 | Somewhat limited | | Somewhat limited | | Not limited | |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | | |
| MR: | | | | | | | |
| Mirror | 70 | Very limited | | Very limited | | Very limited | |
| | | Large stones | 1.00 | Depth to hard bedrock | 1.00 | Too steep | 1.00 |
| | | Too steep | 1.00 | Large stones | 1.00 | Large stones | 1.00 |
| | | Depth to hard bedrock | 0.84 | Too steep | 1.00 | Droughty | 1.00 |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Depth to bedrock | 0.84 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |

Table 15.--Roads and streets, shallow excavations, and lawns and landscaping--continued

| Map symbol and soil name | Pct. of map unit | Local roads and streets | | Shallow excavations | | Lawns and landscaping | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| MsA: | | | | | | | |
| Mosca | 85 | Somewhat limited | | Very limited | | Very limited | |
| | | Frost action | 0.50 | Cutbanks cave | 1.00 | Sodium content | 1.00 |
| | | | | | | Droughty | 1.00 |
| | | | | | | Salinity | 0.50 |
| MtA: | | | | | | | |
| Mesita | 85 | Very limited | | Very limited | | Very limited | |
| | | Flooding | 1.00 | Cutbanks cave | 1.00 | Sodium content | 1.00 |
| | | Low strength | 1.00 | Ponding | 1.00 | Salinity | 1.00 |
| | | Ponding | 1.00 | Flooding | 0.60 | Ponding | 1.00 |
| | | Shrink-swell | 0.78 | Too clayey | 0.12 | Flooding | 0.60 |
| | | Frost action | 0.50 | | | | |
| MuC: | | | | | | | |
| Morval | 65 | Somewhat limited | | Somewhat limited | | Not limited | |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | | |
| Uracca | 20 | Somewhat limited | | Somewhat limited | | Somewhat limited | |
| | | Large stones | 0.53 | Large stones | 0.53 | Droughty | 0.98 |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Large stones | 0.88 |
| | | | | | | Gravel | 0.02 |
| MuE: | | | | | | | |
| Morval | 60 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | | |

Table 15.--Roads and streets, shallow excavations, and lawns and landscaping--continued

| Map symbol and soil name | Pct. of map unit | Local roads and streets | | Shallow excavations | | Lawns and landscaping | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| MuE: | | | | | | | |
| Uracca | 20 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Large stones | 0.53 | Large stones | 0.53 | Droughty | 0.98 |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Large stones | 0.88 |
| | | | | | | Gravel | 0.02 |
| PtC: | | | | | | | |
| Potrio | 85 | Somewhat limited | | Very limited | | Somewhat limited | |
| | | Frost action | 0.50 | Cutbanks cave | 1.00 | Gravel | 0.26 |
| | | | | Depth to hard bedrock | 0.96 | | |
| RF: | | | | | | | |
| Rock outcrop | 50 | Not rated | | Not rated | | Not rated | |
| Rubble land | 50 | Very limited | | Very limited | | Not rated | |
| | | Large stones | 1.00 | Large stones | 1.00 | | |
| | | Too steep | 1.00 | Too steep | 1.00 | | |
| | | | | Dense layer | 0.50 | | |
| RrA: | | | | | | | |
| Trinchera | 85 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Carbonate content | 1.00 |
| RrB: | | | | | | | |
| Trinchera | 85 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Carbonate content | 1.00 |

Table 15.--Roads and streets, shallow excavations, and lawns and landscaping--continued

| Map symbol and soil name | Pct. of map unit | Local roads and streets | | Shallow excavations | | Lawns and landscaping | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| RrD: | | | | | | | |
| Trinchera | 85 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Carbonate content | 1.00 |
| ShA: | | | | | | | |
| Shawa | 85 | Somewhat limited | | Very limited | | Not limited | |
| | | Low strength | 0.78 | Cutbanks cave | 1.00 | | |
| | | Frost action | 0.50 | | | | |
| | | Shrink-swell | 0.11 | | | | |
| ShC: | | | | | | | |
| Shawa | 85 | Somewhat limited | | Very limited | | Not limited | |
| | | Low strength | 0.78 | Cutbanks cave | 1.00 | | |
| | | Frost action | 0.50 | | | | |
| | | Shrink-swell | 0.11 | | | | |
| SL: | | | | | | | |
| Scandard | 45 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Depth to hard bedrock | 1.00 | Too steep | 1.00 |
| | | Depth to hard bedrock | 0.71 | Too steep | 1.00 | Droughty | 0.96 |
| | | Frost action | 0.50 | Cutbanks cave | 1.00 | Depth to bedrock | 0.71 |
| Leadville | 30 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Frost action | 0.50 | Large stones | 0.25 | Droughty | 0.02 |
| | | Large stones | 0.25 | Cutbanks cave | 0.10 | | |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |

Table 15.--Roads and streets, shallow excavations, and lawns and landscaping--continued

| Map symbol and soil name | Pct. of map unit | Local roads and streets | | Shallow excavations | | Lawns and landscaping | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SpD: | | | | | | | |
| Sanpedro | 50 | Very limited | | Very limited | | Very limited | |
| | | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 1.00 | Droughty | 1.00 |
| | | Large stones | 0.90 | Large stones | 0.90 | Depth to bedrock | 1.00 |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Large stones | 1.00 |
| | | | | | | Carbonate content | 1.00 |
| | | | | | | Gravel | 0.01 |
| Potrio | 35 | Somewhat limited | | Very limited | | Somewhat limited | |
| | | Frost action | 0.50 | Cutbanks cave | 1.00 | Gravel | 0.26 |
| | | | | Depth to hard bedrock | 0.96 | | |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| SpF: | | | | | | | |
| Sanpedro | 50 | Very limited | | Very limited | | Very limited | |
| | | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 1.00 | Droughty | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | Depth to bedrock | 1.00 |
| | | Large stones | 0.90 | Large stones | 0.90 | Large stones | 1.00 |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Too steep | 1.00 |
| | | | | | | Carbonate content | 1.00 |
| Potrio | 30 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Cutbanks cave | 1.00 | Too steep | 1.00 |
| | | Frost action | 0.50 | Too steep | 1.00 | Gravel | 0.26 |
| | | | | Depth to hard bedrock | 0.96 | | |

Table 15.--Roads and streets, shallow excavations, and lawns and landscaping--continued

| Map symbol and soil name | Pct. of map unit | Local roads and streets | | Shallow excavations | | Lawns and landscaping | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SpF: | | | | | | | |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| StB: | | | | | | | |
| Stunner | 85 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Carbonate content | 1.00 |
| | | Low strength | 0.22 | | | | |
| StC: | | | | | | | |
| Stunner | 85 | Somewhat limited | | Somewhat limited | | Very limited | |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Carbonate content | 1.00 |
| | | Low strength | 0.22 | | | | |
| SzF: | | | | | | | |
| Seitz | 60 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Cutbanks cave | 1.00 | Too steep | 1.00 |
| | | Frost action | 0.50 | Too steep | 1.00 | Droughty | 0.02 |
| | | Shrink-swell | 0.01 | | | | |
| Tolvar | 20 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Cutbanks cave | 1.00 | Too steep | 1.00 |
| | | Frost action | 0.50 | Too steep | 1.00 | Droughty | 0.10 |
| TlD: | | | | | | | |
| Tolvar | 65 | Somewhat limited | | Very limited | | Somewhat limited | |
| | | Frost action | 0.50 | Cutbanks cave | 1.00 | Droughty | 0.10 |

Table 15.--Roads and streets, shallow excavations, and lawns and landscaping--continued

| Map symbol and soil name | Pct. of map unit | Local roads and streets | | Shallow excavations | | Lawns and landscaping | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| TlD: | | | | | | | |
| Laveta | 25 | Somewhat limited | | Very limited | | Somewhat limited | |
| | | Depth to hard bedrock | 0.79 | Depth to hard bedrock | 1.00 | Droughty | 0.94 |
| | | Frost action | 0.50 | Cutbanks cave | 1.00 | Depth to bedrock | 0.80 |
| TlF: | | | | | | | |
| Tolvar | 45 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Cutbanks cave | 1.00 | Too steep | 1.00 |
| | | Frost action | 0.50 | Too steep | 1.00 | Droughty | 0.10 |
| Laveta | 30 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Depth to hard bedrock | 1.00 | Too steep | 1.00 |
| | | Depth to hard bedrock | 0.79 | Cutbanks cave | 1.00 | Droughty | 0.94 |
| | | Frost action | 0.50 | Too steep | 1.00 | Depth to bedrock | 0.80 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| ToF: | | | | | | | |
| Tolvar | 85 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Cutbanks cave | 1.00 | Too steep | 1.00 |
| | | Frost action | 0.50 | Too steep | 1.00 | Droughty | 0.10 |

Table 15.--Roads and streets, shallow excavations, and lawns and landscaping--continued

| Map symbol and soil name | Pct. of map unit | Local roads and streets | | Shallow excavations | | Lawns and landscaping | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| TvD: | | | | | | | |
| Travelers | 70 | Very limited | | Very limited | | Very limited | |
| | | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 1.00 | Droughty | 1.00 |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Depth to bedrock | 1.00 |
| | | | | | | Gravel | 0.15 |
| | | | | | | Large stones | 0.05 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| TvF: | | | | | | | |
| Travelers | 70 | Very limited | | Very limited | | Very limited | |
| | | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 1.00 | Droughty | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | Depth to bedrock | 1.00 |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Too steep | 1.00 |
| | | | | | | Gravel | 0.15 |
| | | | | | | Large stones | 0.05 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| UmF: | | | | | | | |
| Uracca | 65 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Large stones | 0.53 | Large stones | 0.53 | Droughty | 0.98 |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Large stones | 0.88 |
| | | | | | | Gravel | 0.02 |
| Morval | 20 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | | |

Table 15.--Roads and streets, shallow excavations, and lawns and landscaping--continued

| Map symbol and soil name | Pct. of map unit | Local roads and streets | | Shallow excavations | | Lawns and landscaping | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| UrF: | | | | | | | |
| Uracca | 50 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Large stones | 0.53 | Large stones | 0.53 | Droughty | 0.98 |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Large stones | 0.88 |
| | | | | | | Gravel | 0.02 |
| Culebra | 30 | Very limited | | Very limited | | Very limited | |
| | | Depth to hard bedrock | 1.00 | Depth to hard bedrock | 1.00 | Droughty | 1.00 |
| | | | | | | Depth to bedrock | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Frost action | 0.50 | Cutbanks cave | 0.10 | Gravel | 0.98 |
| | | | | | | Large stones | 0.03 |
| VeA: | | | | | | | |
| Ventero | 85 | Very limited | | Very limited | | Very limited | |
| | | Ponding | 1.00 | Ponding | 1.00 | Ponding | 1.00 |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 |
| | | Flooding | 1.00 | Organic matter content | 1.00 | Flooding | 0.60 |
| | | Low strength | 1.00 | | | | |
| | | Frost action | 0.50 | Flooding | 0.60 | | |
| | | | | Cutbanks cave | 0.10 | | |

Table 15.--Roads and streets, shallow excavations, and lawns and landscaping--continued

| Map symbol and soil name | Pct. of map unit | Local roads and streets | | Shallow excavations | | Lawns and landscaping | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| VgA: | | | | | | | |
| Vastine | 45 | Very limited | | Very limited | | Somewhat limited | |
| | | Flooding | 1.00 | Depth to saturated zone | 1.00 | Depth to saturated zone | 0.94 |
| | | Depth to saturated zone | 0.94 | Cutbanks cave | 1.00 | Flooding | 0.60 |
| | | Frost action | 0.50 | Flooding | 0.60 | | |
| Gerrard | 40 | Very limited | | Very limited | | Somewhat limited | |
| | | Flooding | 1.00 | Depth to saturated zone | 1.00 | Depth to saturated zone | 0.94 |
| | | Depth to saturated zone | 0.94 | Cutbanks cave | 1.00 | Flooding | 0.60 |
| | | Frost action | 0.50 | Flooding | 0.60 | Droughty | 0.05 |
| W: | | | | | | | |
| Water | 100 | Not rated | | Not rated | | Not rated | |

**Table 16.--Sewage disposal**

**(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)**

| Map symbol and soil name | Pct. of map unit | Septic tank absorption fields | | Sewage lagoons | |
|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value |
| AmC: | | | | | |
| Amalia | 85 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 |
| | | Slow water movement | 0.46 | Slope | 0.92 |
| AmE: | | | | | |
| Amalia | 85 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Slope | 1.00 |
| | | Too steep | 1.00 | Seepage | 1.00 |
| | | Slow water movement | 0.46 | | |
| Aq: | | | | | |
| Cumulic Cryaquolls | 85 | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 |
| | | Depth to saturated zone | 1.00 | Seepage | 1.00 |
| | | Seepage, bottom layer | 1.00 | Depth to saturated zone | 1.00 |
| | | Ponding | 1.00 | Ponding | 1.00 |
| | | Slow water movement | 0.46 | | |
| BfA: | | | | | |
| Blanfort | 85 | Not limited | | Very limited | |
| | | | | Seepage | 1.00 |
| BfD: | | | | | |
| Blanfort | 85 | Not limited | | Very limited | |
| | | | | Seepage | 1.00 |
| | | | | Slope | 0.92 |
| CsA: | | | | | |
| Cososa | 85 | Somewhat limited | | Very limited | |
| | | Slow water movement | 0.46 | Seepage | 1.00 |
| CsD: | | | | | |
| Cososa | 85 | Somewhat limited | | Very limited | |
| | | Slow water movement | 0.46 | Seepage | 1.00 |
| | | | | Slope | 0.92 |
| CtA: | | | | | |
| Costilla | 85 | Very limited | | Very limited | |
| | | Filtering capacity | 1.00 | Seepage | 1.00 |

**Table 16.--Sewage disposal--continued**

| Map symbol and soil name | Pct. of map unit | Septic tank absorption fields | | Sewage lagoons | |
|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value |
| CuF: | | | | | |
| Comodore | 50 | Very limited | | Very limited | |
| | | Depth to bedrock | 1.00 | Depth to hard bedrock | 1.00 |
| | | Too steep | 1.00 | | |
| | | Large stones | 0.99 | Slope | 1.00 |
| | | | | Large stones | 1.00 |
| | | | | Seepage | 1.00 |
| Rock outcrop | 20 | Not rated | | Not rated | |
| Uracca | 20 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 |
| | | | | Slope | 1.00 |
| | | Too steep | 1.00 | Large stones | 0.99 |
| | | Large stones | 0.53 | | |
| DAM: | | | | | |
| Dam | 100 | Not rated | | Not rated | |
| DrD: | | | | | |
| Durreo | 85 | Somewhat limited | | Very limited | |
| | | Large stones | 0.01 | Seepage | 1.00 |
| | | | | Slope | 0.68 |
| | | | | Large stones | 0.10 |
| EaA: | | | | | |
| Eastdale | 85 | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 |
| | | Seepage, bottom layer | 1.00 | Ponding | 1.00 |
| | | | | Seepage | 0.53 |
| | | Slow water movement | 1.00 | | |
| | | Ponding | 1.00 | | |
| FLB: | | | | | |
| Fluvents | 80 | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 |
| | | Depth to saturated zone | 1.00 | Seepage | 1.00 |
| | | | | Depth to saturated zone | 1.00 |
| | | Filtering capacity | 1.00 | | |
| | | Seepage, bottom layer | 1.00 | | |
| FtA: | | | | | |
| Fuertes | 85 | Very limited | | Very limited | |
| | | Depth to saturated zone | 1.00 | Seepage | 1.00 |
| | | | | Depth to saturated zone | 1.00 |
| | | Seepage, bottom layer | 1.00 | | |
| | | Slow water movement | 0.46 | | |

Table 16.--Sewage disposal--continued

| Map symbol and soil name | Pct. of map unit | Septic tank absorption fields | | Sewage lagoons | |
|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value |
| GmE: | | | | | |
| Aquic Dystrocryepts- | 90 | Very limited | | Very limited | |
| | | Depth to saturated zone | 1.00 | Seepage | 1.00 |
| | | Seepage, bottom layer | 1.00 | Depth to saturated zone | 1.00 |
| | | Too steep | 1.00 | Slope | 1.00 |
| Gn: | | | | | |
| Angostura---------- | 90 | Very limited | | Very limited | |
| | | Too steep | 1.00 | Slope | 1.00 |
| | | Slow water movement | 0.50 | Seepage | 1.00 |
| | | Large stones | 0.14 | Large stones | 0.88 |
| GP: | | | | | |
| Pits, gravel-------- | 100 | Not rated | | Not rated | |
| GpA: | | | | | |
| Graypoint---------- | 85 | Very limited | | Very limited | |
| | | Filtering capacity | 1.00 | Seepage | 1.00 |
| GrA: | | | | | |
| Grayco------------- | 85 | Very limited | | Very limited | |
| | | Filtering capacity | 1.00 | Seepage | 1.00 |
| GrC: | | | | | |
| Grayco------------- | 85 | Very limited | | Very limited | |
| | | Filtering capacity | 1.00 | Seepage | 1.00 |
| | | | | Slope | 0.32 |
| Ho: | | | | | |
| Hooper, loamy sand-- | 70 | Very limited | | Very limited | |
| | | Filtering capacity | 1.00 | Seepage | 1.00 |
| | | Depth to saturated zone | 0.40 | | |
| Hooper, clay loam--- | 20 | Very limited | | Very limited | |
| | | Slow water movement | 1.00 | Seepage | 1.00 |
| | | Ponding | 1.00 | Ponding | 1.00 |
| | | Depth to saturated zone | 0.40 | | |
| Hp: | | | | | |
| Hooper, clay loam--- | 65 | Very limited | | Very limited | |
| | | Slow water movement | 1.00 | Seepage | 1.00 |
| | | Ponding | 1.00 | Ponding | 1.00 |
| | | Depth to saturated zone | 0.40 | | |

Table 16.--Sewage disposal--continued

| Map symbol and soil name | Pct. of map unit | Septic tank absorption fields | | Sewage lagoons | |
|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value |
| Hp: | | | | | |
| Hooper, loamy sand-- | 30 | Very limited | | Very limited | |
| | | Filtering capacity | 1.00 | Seepage | 1.00 |
| | | Depth to saturated zone | 0.40 | | |
| KbA: | | | | | |
| Kibin---------- | 85 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 |
| | | Slow water movement | 1.00 | | |
| KbC: | | | | | |
| Kibin---------- | 85 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 |
| | | Slow water movement | 1.00 | Slope | 0.32 |
| LbF: | | | | | |
| Lambe---------- | 60 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Slope | 1.00 |
| | | Too steep | 1.00 | Seepage | 0.53 |
| | | Slow water movement | 0.46 | Large stones | 0.03 |
| Woodhall---------- | 30 | Very limited | | Very limited | |
| | | Slow water movement | 1.00 | Depth to hard bedrock | 1.00 |
| | | Depth to bedrock | 1.00 | Seepage | 1.00 |
| | | Slope | 0.96 | Slope | 1.00 |
| | | Large stones | 0.18 | Large stones | 0.49 |
| LeF: | | | | | |
| Fallriver---------- | 65 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Slope | 1.00 |
| | | Too steep | 1.00 | Seepage | 1.00 |
| | | | | Large stones | 0.01 |
| Rock outcrop-------- | 20 | Not rated | | Not rated | |
| LH: | | | | | |
| Leadville---------- | 60 | Very limited | | Very limited | |
| | | Too steep | 1.00 | Slope | 1.00 |
| | | Slow water movement | 0.46 | Seepage | 1.00 |
| | | Large stones | 0.25 | | |
| Howlett---------- | 30 | Very limited | | Very limited | |
| | | Too steep | 1.00 | Seepage | 1.00 |
| | | Slow water movement | 0.50 | Slope | 1.00 |
| M: | | | | | |
| Pits, mine---------- | 100 | Not rated | | Not rated | |

Table 16.--Sewage disposal--continued

| Map symbol and soil name | Pct. of map unit | Septic tank absorption fields | | Sewage lagoons | |
|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value |
| McA: | | | | | |
| McGinty | 85 | Not limited | | Very limited | |
| | | | | Seepage | 1.00 |
| McB: | | | | | |
| McGinty | 85 | Not limited | | Very limited | |
| | | | | Seepage | 1.00 |
| McC: | | | | | |
| McGinty | 85 | Not limited | | Very limited | |
| | | | | Seepage | 1.00 |
| | | | | Slope | 0.68 |
| MR: | | | | | |
| Mirror | 70 | Very limited | | Very limited | |
| | | Too steep | 1.00 | Depth to hard bedrock | 1.00 |
| | | Large stones | 1.00 | Slope | 1.00 |
| | | Seepage, bottom layer | 1.00 | Large stones | 1.00 |
| | | Depth to bedrock | 1.00 | Seepage | 1.00 |
| Rock outcrop | 20 | Not rated | | Not rated | |
| MsA: | | | | | |
| Mosca | 85 | Not limited | | Very limited | |
| | | | | Seepage | 1.00 |
| MtA: | | | | | |
| Mesita | 85 | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 |
| | | Slow water movement | 1.00 | Seepage | 1.00 |
| | | Ponding | 1.00 | Ponding | 1.00 |
| MuC: | | | | | |
| Morval | 65 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 |
| | | Slow water movement | 0.46 | Slope | 0.92 |
| Uracca | 20 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 |
| | | Large stones | 0.53 | Large stones | 0.99 |
| | | | | Slope | 0.92 |
| MuE: | | | | | |
| Morval | 60 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 |
| | | Too steep | 1.00 | Slope | 1.00 |
| | | Slow water movement | 0.46 | | |
| Uracca | 20 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 |
| | | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones | 0.53 | Large stones | 0.99 |

**Table 16.--Sewage disposal--continued**

| Map symbol and soil name | Pct. of map unit | Septic tank absorption fields | | Sewage lagoons | |
|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value |
| PtC: | | | | | |
| Potrio | 85 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 |
| | | Depth to bedrock | 0.99 | Depth to hard bedrock | 0.96 |
| | | Slow water movement | 0.46 | Slope | 0.08 |
| RF: | | | | | |
| Rock outcrop | 50 | Not rated | | Not rated | |
| Rubble land | 50 | Very limited | | Not rated | |
| | | Filtering capacity | 1.00 | | |
| | | Too steep | 1.00 | | |
| | | Large stones | 1.00 | | |
| | | Seepage, bottom layer | 1.00 | | |
| RrA: | | | | | |
| Trinchera | 85 | Not limited | | Very limited | |
| | | | | Seepage | 1.00 |
| RrB: | | | | | |
| Trinchera | 85 | Not limited | | Very limited | |
| | | | | Seepage | 1.00 |
| RrD: | | | | | |
| Trinchera | 85 | Not limited | | Very limited | |
| | | | | Seepage | 1.00 |
| | | | | Slope | 0.92 |
| ShA: | | | | | |
| Shawa | 85 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 |
| | | Slow water movement | 0.46 | | |
| ShC: | | | | | |
| Shawa | 85 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 |
| | | Slow water movement | 0.46 | Slope | 1.00 |
| SL: | | | | | |
| Scandard | 45 | Very limited | | Very limited | |
| | | Too steep | 1.00 | Depth to hard bedrock | 1.00 |
| | | Slow water movement | 1.00 | Slope | 1.00 |
| | | Depth to bedrock | 1.00 | Seepage | 0.50 |
| Leadville | 30 | Very limited | | Very limited | |
| | | Too steep | 1.00 | Slope | 1.00 |
| | | Slow water movement | 0.46 | Seepage | 1.00 |
| | | Large stones | 0.25 | | |

Table 16.--Sewage disposal--continued

| Map symbol and soil name | Pct. of map unit | Septic tank absorption fields | | Sewage lagoons | |
|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SL: | | | | | |
| Rock outcrop | 15 | Not rated | | Not rated | |
| SpD: | | | | | |
| Sanpedro | 50 | Very limited | | Very limited | |
| | | Depth to bedrock | 1.00 | Depth to hard bedrock | 1.00 |
| | | Large stones | 0.90 | Seepage | 1.00 |
| | | | | Large stones | 1.00 |
| | | | | Slope | 0.92 |
| Potrio | 35 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 |
| | | Depth to bedrock | 0.99 | Depth to hard bedrock | 0.96 |
| | | Slow water movement | 0.46 | Slope | 0.92 |
| Rock outcrop | 15 | Not rated | | Not rated | |
| SpF: | | | | | |
| Sanpedro | 50 | Very limited | | Very limited | |
| | | Depth to bedrock | 1.00 | Depth to hard bedrock | 1.00 |
| | | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones | 0.90 | Seepage | 1.00 |
| | | | | Large stones | 1.00 |
| Potrio | 30 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Slope | 1.00 |
| | | Too steep | 1.00 | Seepage | 1.00 |
| | | Depth to bedrock | 0.99 | Depth to hard bedrock | 0.96 |
| | | Slow water movement | 0.46 | | |
| Rock outcrop | 20 | Not rated | | Not rated | |
| StB: | | | | | |
| Stunner | 85 | Somewhat limited | | Somewhat limited | |
| | | Slow water movement | 0.46 | Seepage | 0.53 |
| StC: | | | | | |
| Stunner | 85 | Somewhat limited | | Somewhat limited | |
| | | Slow water movement | 0.46 | Slope | 0.68 |
| | | | | Seepage | 0.53 |
| SzF: | | | | | |
| Seitz | 60 | Very limited | | Very limited | |
| | | Slow water movement | 1.00 | Slope | 1.00 |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 |
| | | Too steep | 1.00 | | |

**Table 16.--Sewage disposal--continued**

| Map symbol and soil name | Pct. of map unit | Septic tank absorption fields | | Sewage lagoons | |
|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SzF: | | | | | |
| Tolvar | 20 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Slope | 1.00 |
| | | Too steep | 1.00 | Seepage | 1.00 |
| | | Slow water movement | 0.46 | | |
| TlD: | | | | | |
| Tolvar | 65 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 |
| | | Slow water movement | 0.46 | Slope | 0.92 |
| Laveta | 25 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Depth to hard bedrock | 1.00 |
| | | Depth to bedrock | 1.00 | Seepage | 1.00 |
| | | | | Slope | 0.92 |
| TlF: | | | | | |
| Tolvar | 45 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Slope | 1.00 |
| | | Too steep | 1.00 | Seepage | 1.00 |
| | | Slow water movement | 0.46 | | |
| Laveta | 30 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Depth to hard bedrock | 1.00 |
| | | Depth to bedrock | 1.00 | Slope | 1.00 |
| | | Too steep | 1.00 | Seepage | 1.00 |
| Rock outcrop | 15 | Not rated | | Not rated | |
| ToF: | | | | | |
| Tolvar | 85 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Slope | 1.00 |
| | | Too steep | 1.00 | Seepage | 1.00 |
| | | Slow water movement | 0.46 | | |
| TvD: | | | | | |
| Travelers | 70 | Very limited | | Very limited | |
| | | Depth to bedrock | 1.00 | Depth to hard bedrock | 1.00 |
| | | | | Seepage | 1.00 |
| | | | | Slope | 0.68 |
| Rock outcrop | 15 | Not rated | | Not rated | |

Table 16.--Sewage disposal--continued

| Map symbol and soil name | Pct. of map unit | Septic tank absorption fields | | Sewage lagoons | |
|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value |
| TvF: | | | | | |
| Travelers | 70 | Very limited | | Very limited | |
| | | Depth to bedrock | 1.00 | Depth to hard bedrock | 1.00 |
| | | Too steep | 1.00 | Slope | 1.00 |
| | | | | Seepage | 1.00 |
| Rock outcrop | 15 | Not rated | | Not rated | |
| UmF: | | | | | |
| Uracca | 65 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 |
| | | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones | 0.53 | Large stones | 0.99 |
| Morval | 20 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 |
| | | Too steep | 1.00 | Slope | 1.00 |
| | | Slow water movement | 0.46 | | |
| UrF: | | | | | |
| Uracca | 50 | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 |
| | | Too steep | 1.00 | Slope | 1.00 |
| | | Large stones | 0.53 | Large stones | 0.99 |
| Culebra | 30 | Very limited | | Very limited | |
| | | Depth to bedrock | 1.00 | Depth to hard bedrock | 1.00 |
| | | Seepage, bottom layer | 1.00 | Slope | 1.00 |
| | | Too steep | 1.00 | | |
| VeA: | | | | | |
| Ventero | 85 | Very limited | | Very limited | |
| | | Flooding | 1.00 | Ponding | 1.00 |
| | | Ponding | 1.00 | Flooding | 1.00 |
| | | Depth to saturated zone | 1.00 | Seepage | 1.00 |
| | | Seepage, bottom layer | 1.00 | Depth to saturated zone | 1.00 |
| | | Slow water movement | 1.00 | Organic matter content | 1.00 |
| VgA: | | | | | |
| Vastine | 45 | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 |
| | | Depth to saturated zone | 1.00 | Seepage | 1.00 |
| | | Seepage, bottom layer | 1.00 | Depth to saturated zone | 1.00 |
| | | Slow water movement | 0.46 | | |

**Table 16.--Sewage disposal--continued**

| Map symbol and soil name | Pct. of map unit | Septic tank absorption fields | | Sewage lagoons | |
|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value |
| VgA: | | | | | |
| Gerrard | 40 | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 |
| | | Depth to saturated zone | 1.00 | Seepage | 1.00 |
| | | Filtering capacity | 1.00 | Depth to saturated zone | 1.00 |
| | | Seepage, bottom layer | 1.00 | | |
| W: | | | | | |
| Water | 100 | Not rated | | Not rated | |

## Table 17.--Landfills

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| AmC: | | | | | | | |
| Amalia | 85 | Very limited | | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Seepage | 1.00 |
| | | Too sandy | 0.50 | | | Gravel content | 1.00 |
| | | | | | | Too sandy | 0.50 |
| AmE: | | | | | | | |
| Amalia | 85 | Very limited | | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Seepage | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | Gravel content | 1.00 |
| | | Too sandy | 0.50 | | | Too steep | 1.00 |
| | | | | | | Too sandy | 0.50 |
| Aq: | | | | | | | |
| Cumulic Cryaquolls | 85 | Very limited | | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 | Depth to saturated zone | 1.00 |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Gravel content | 1.00 |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Ponding | 1.00 |
| | | Ponding | 1.00 | Ponding | 1.00 | Seepage | 0.52 |

Table 17.—Landfills--continued

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| BfA: | | | | | | | |
| Blanfort | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Seepage | 0.52 |
| BfD: | | | | | | | |
| Blanfort | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Seepage | 0.52 |
| CsA: | | | | | | | |
| Cososa | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Gravel content | 0.26 |
| CsD: | | | | | | | |
| Cososa | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Gravel content | 0.26 |
| CtA: | | | | | | | |
| Costilla | 85 | Very limited | | Not limited | | Very limited | |
| | | Too sandy | 1.00 | | | Too sandy | 1.00 |
| | | | | | | Seepage | 1.00 |
| | | | | | | Gravel content | 0.05 |
| CuF: | | | | | | | |
| Comodore | 50 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Depth to bedrock | 1.00 |
| | | Depth to bedrock | 1.00 | Depth to bedrock | 1.00 | Too steep | 1.00 |
| | | Large stones | 0.99 | Seepage | 1.00 | Large stones | 0.99 |
| | | | | | | Gravel content | 0.26 |

Table 17.—Landfills--continued

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| CuF: | | | | | | | |
| Rock outcrop | 20 | Not rated | | Very limited | | Not rated | |
| | | | | Too steep | 1.00 | | |
| | | | | Depth to bedrock | 1.00 | | |
| | | | | Seepage | 1.00 | | |
| Uracca | 20 | Very limited | | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Too steep | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | Large stones | 0.69 |
| | | Large stones | 0.69 | | | Gravel content | 0.55 |
| | | | | | | Seepage | 0.52 |
| DAM: | | | | | | | |
| Dam | 100 | Not rated | | Not rated | | Not rated | |
| DrD: | | | | | | | |
| Durreo | 85 | Somewhat limited | | Not limited | | Somewhat limited | |
| | | Large stones | 0.02 | | | Seepage | 0.52 |
| | | | | | | Gravel content | 0.16 |
| | | | | | | Large stones | 0.02 |
| EaA: | | | | | | | |
| Eastdale | 85 | Very limited | | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 | Ponding | 1.00 |
| | | Seepage, bottom layer | 1.00 | Ponding | 1.00 | Seepage | 0.52 |
| | | Ponding | 1.00 | | | | |

Table 17.—Landfills--continued

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| FLB: | | | | | | | |
| Fluvents | 80 | Very limited | | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 | Depth to saturated zone | 1.00 |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Too sandy | 1.00 |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Seepage | 1.00 |
| | | Too sandy | 1.00 | | | Gravel content | 1.00 |
| FtA: | | | | | | | |
| Fuertes | 85 | Very limited | | Very limited | | Very limited | |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Seepage | 1.00 |
| | | Seepage, bottom layer | 1.00 | | | Depth to saturated zone | 0.47 |
| GmE: | | | | | | | |
| Aquic Dystrocryepts | 90 | Very limited | | Very limited | | Very limited | |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Too steep | 1.00 |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Seepage | 0.50 |
| | | Too steep | 1.00 | Too steep | 1.00 | Depth to saturated zone | 0.47 |
| | | | | | | Gravel content | 0.24 |

Table 17.—Landfills--continued

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| Gn: | | | | | | | |
| Angostura | 90 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Too clayey | 0.50 | | | Too clayey | 0.50 |
| | | Large stones | 0.20 | | | Gravel content | 0.24 |
| | | | | | | Large stones | 0.20 |
| GP: | | | | | | | |
| Pits, gravel | 100 | Not rated | | Not rated | | Not rated | |
| GpA: | | | | | | | |
| Graypoint | 85 | Very limited | | Not limited | | Very limited | |
| | | Too sandy | 1.00 | | | Too sandy | 1.00 |
| | | | | | | Seepage | 1.00 |
| | | | | | | Gravel content | 1.00 |
| GrA: | | | | | | | |
| Grayco | 85 | Very limited | | Not limited | | Very limited | |
| | | Too sandy | 1.00 | | | Too sandy | 1.00 |
| | | | | | | Seepage | 1.00 |
| | | | | | | Gravel content | 1.00 |
| GrC: | | | | | | | |
| Grayco | 85 | Very limited | | Not limited | | Very limited | |
| | | Too sandy | 1.00 | | | Too sandy | 1.00 |
| | | | | | | Seepage | 1.00 |
| | | | | | | Gravel content | 1.00 |

Table 17.—Landfills--continued

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| Ho: | | | | | | | |
| Hooper, loamy sand-- | 70 | Very limited | | Very limited | | Very limited | |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Too sandy | 1.00 |
| | | Too sandy | 1.00 | | | Seepage | 1.00 |
| Hooper, clay loam--- | 20 | Very limited | | Very limited | | Very limited | |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Too sandy | 1.00 |
| | | Too sandy | 1.00 | Ponding | 1.00 | Seepage | 1.00 |
| | | Ponding | 1.00 | | | Ponding | 1.00 |
| Hp: | | | | | | | |
| Hooper, clay loam--- | 65 | Very limited | | Very limited | | Very limited | |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Too sandy | 1.00 |
| | | Too sandy | 1.00 | Ponding | 1.00 | Seepage | 1.00 |
| | | Ponding | 1.00 | | | Ponding | 1.00 |
| Hooper, loamy sand-- | 30 | Very limited | | Very limited | | Very limited | |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Too sandy | 1.00 |
| | | Too sandy | 1.00 | | | Seepage | 1.00 |
| KbA: | | | | | | | |
| Kibin---------- | 85 | Very limited | | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Too sandy | 1.00 |
| | | Too sandy | 1.00 | | | Seepage | 1.00 |
| | | | | | | Gravel content | 0.81 |

Table 17.—Landfills--continued

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| KbC: | | | | | | | |
| Kibin | 85 | Very limited | | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Too sandy | 1.00 |
| | | Too sandy | 1.00 | | | Seepage | 1.00 |
| | | | | | | Gravel content | 0.81 |
| LbF: | | | | | | | |
| Lambe | 60 | Very limited | | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Too steep | 1.00 | Gravel content | 1.00 |
| | | Too steep | 1.00 | | | Too steep | 1.00 |
| Woodhall | 30 | Very limited | | Very limited | | Very limited | |
| | | Depth to bedrock | 1.00 | Seepage | 1.00 | Depth to bedrock | 1.00 |
| | | Slope | 0.96 | Depth to bedrock | 1.00 | Slope | 0.96 |
| | | Large stones | 0.18 | Slope | 0.96 | Gravel content | 0.41 |
| | | | | | | Large stones | 0.18 |
| LeF: | | | | | | | |
| Fallriver | 65 | Very limited | | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Seepage | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | | | | | Gravel content | 0.95 |
| Rock outcrop | 20 | Not rated | | Very limited | | Not rated | |
| | | | | Too steep | 1.00 | | |
| | | | | Depth to bedrock | 1.00 | | |
| | | | | Seepage | 1.00 | | |

Table 17.—Landfills--continued

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| LH: | | | | | | | |
| Leadville | 60 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Large stones | 0.57 | Seepage | 1.00 | Large stones | 0.57 |
| Howlett | 30 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| M: | | | | | | | |
| Pits, mine | 100 | Not rated | | Very limited | | Not rated | |
| | | | | Too steep | 1.00 | | |
| McA: | | | | | | | |
| McGinty | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Seepage | 0.52 |
| McB: | | | | | | | |
| McGinty | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Seepage | 0.52 |
| McC: | | | | | | | |
| McGinty | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Seepage | 0.52 |

Table 17.—Landfills--continued

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| MR: | | | | | | | |
| Mirror | 70 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Depth to bedrock | 1.00 | Seepage | 1.00 | Large stones | 1.00 |
| | | Seepage, bottom layer | 1.00 | Depth to bedrock | 1.00 | Depth to bedrock | 1.00 |
| | | Large stones | 1.00 | | | Seepage | 0.50 |
| Rock outcrop | 20 | Not rated | | Very limited | | Not rated | |
| | | | | Too steep | 1.00 | | |
| | | | | Depth to bedrock | 1.00 | | |
| MsA: | | | | | | | |
| Mosca | 85 | Very limited | | Not limited | | Very limited | |
| | | Too sandy | 1.00 | | | Seepage | 1.00 |
| | | | | | | Too sandy | 1.00 |
| MtA: | | | | | | | |
| Mesita | 85 | Very limited | | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 | Too clayey | 1.00 |
| | | Too clayey | 1.00 | Ponding | 1.00 | Salinity | 1.00 |
| | | Excess sodium | 1.00 | | | Sodium content | 1.00 |
| | | Excess salt | 1.00 | | | Ponding | 1.00 |
| | | Ponding | 1.00 | | | | |
| MuC: | | | | | | | |
| Morval | 65 | Very limited | | Not limited | | Not limited | |
| | | Seepage, bottom layer | 1.00 | | | | |

Table 17.—Landfills--continued

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| MuC: | | | | | | | |
| Uracca | 20 | Very limited | | Very limited | | Somewhat limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Large stones | 0.69 |
| | | Large stones | 0.69 | | | Gravel content | 0.55 |
| | | | | | | Seepage | 0.52 |
| MuE: | | | | | | | |
| Morval | 60 | Very limited | | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Too steep | 1.00 | | | | |
| Uracca | 20 | Very limited | | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Too steep | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | Large stones | 0.69 |
| | | Large stones | 0.69 | | | Gravel content | 0.55 |
| | | | | | | Seepage | 0.52 |
| PtC: | | | | | | | |
| Potrio | 85 | Very limited | | Very limited | | Somewhat limited | |
| | | Depth to bedrock | 1.00 | Seepage | 1.00 | Depth to bedrock | 0.96 |
| | | Seepage, bottom layer | 1.00 | Depth to bedrock | 0.96 | Gravel content | 0.49 |
| RF: | | | | | | | |
| Rock outcrop | 50 | Not rated | | Very limited | | Not rated | |
| | | | | Too steep | 1.00 | | |
| | | | | Depth to bedrock | 1.00 | | |

Table 17.—Landfills--continued

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| RF: | | | | | | | |
| Rubble land | 50 | Not rated | | Very limited | | Not rated | |
| | | | | Too steep | 1.00 | | |
| | | | | Seepage | 1.00 | | |
| RrA: | | | | | | | |
| Trinchera | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Seepage | 0.52 |
| RrB: | | | | | | | |
| Trinchera | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Seepage | 0.52 |
| RrD: | | | | | | | |
| Trinchera | 85 | Not limited | | Not limited | | Somewhat limited | |
| | | | | | | Seepage | 0.52 |
| ShA: | | | | | | | |
| Shawa | 85 | Very limited | | Not limited | | Somewhat limited | |
| | | Seepage, bottom layer | 1.00 | | | Seepage | 0.52 |
| ShC: | | | | | | | |
| Shawa | 85 | Very limited | | Not limited | | Somewhat limited | |
| | | Seepage, bottom layer | 1.00 | | | Seepage | 0.52 |

Table 17.—Landfills--continued

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SL: | | | | | | | |
| Scandard | 45 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Depth to bedrock | 1.00 | Depth to bedrock | 1.00 | Depth to bedrock | 1.00 |
| | | | | | | Gravel content | 0.09 |
| Leadville | 30 | Very limited | | Very limited | | Very limited | |
| | | Too steep | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Large stones | 0.57 | Seepage | 1.00 | Large stones | 0.57 |
| Rock outcrop | 15 | Not rated | | Very limited | | Not rated | |
| | | | | Too steep | 1.00 | | |
| | | | | Depth to bedrock | 1.00 | | |
| SpD: | | | | | | | |
| Sanpedro | 50 | Very limited | | Not limited | | Very limited | |
| | | Depth to bedrock | 1.00 | | | Depth to bedrock | 1.00 |
| | | Large stones | 0.90 | | | Carbonate content | 1.00 |
| | | | | | | Large stones | 0.90 |
| | | | | | | Seepage | 0.52 |
| | | | | | | Gravel content | 0.18 |
| Potrio | 35 | Very limited | | Very limited | | Somewhat limited | |
| | | Depth to bedrock | 1.00 | Seepage | 1.00 | Depth to bedrock | 0.96 |
| | | Seepage, bottom layer | 1.00 | Depth to bedrock | 0.96 | Gravel content | 0.49 |

Table 17.—Landfills--continued

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SpD: | | | | | | | |
| Rock outcrop-------- | 15 | Not rated | | Very limited | | Not rated | |
| | | | | Depth to bedrock | 1.00 | | |
| | | | | Seepage | 1.00 | | |
| SpF: | | | | | | | |
| Sanpedro---------- | 50 | Very limited | | Very limited | | Very limited | |
| | | Depth to bedrock | 1.00 | Too steep | 1.00 | Depth to bedrock | 1.00 |
| | | Too steep | 1.00 | | | Too steep | 1.00 |
| | | Large stones | 0.90 | | | Carbonate content | 1.00 |
| | | | | | | Large stones | 0.90 |
| | | | | | | Seepage | 0.52 |
| Potrio---------- | 30 | Very limited | | Very limited | | Very limited | |
| | | Depth to bedrock | 1.00 | Seepage | 1.00 | Too steep | 1.00 |
| | | Seepage, bottom layer | 1.00 | Too steep | 1.00 | Depth to bedrock | 0.96 |
| | | Too steep | 1.00 | Depth to bedrock | 0.96 | Gravel content | 0.49 |
| Rock outcrop-------- | 20 | Not rated | | Very limited | | Not rated | |
| | | | | Depth to bedrock | 1.00 | | |
| | | | | Too steep | 1.00 | | |
| | | | | Seepage | 1.00 | | |
| StB: | | | | | | | |
| Stunner---------- | 85 | Not limited | | Not limited | | Not limited | |
| StC: | | | | | | | |
| Stunner---------- | 85 | Not limited | | Not limited | | Not limited | |

Table 17.—Landfills--continued

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SzF: | | | | | | | |
| Seitz | 60 | Very limited | | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Too steep | 1.00 | | | Gravel content | 0.88 |
| | | Too clayey | 0.50 | | | Seepage | 0.52 |
| | | Large stones | 0.05 | | | Too clayey | 0.50 |
| | | | | | | Large stones | 0.05 |
| Tolvar | 20 | Very limited | | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Too steep | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | Gravel content | 0.99 |
| | | | | | | Seepage | 0.52 |
| TlD: | | | | | | | |
| Tolvar | 65 | Very limited | | Very limited | | Somewhat limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Gravel content | 0.99 |
| | | | | | | Seepage | 0.52 |
| Laveta | 25 | Very limited | | Very limited | | Very limited | |
| | | Depth to bedrock | 1.00 | Seepage | 1.00 | Depth to bedrock | 1.00 |
| | | Seepage, bottom layer | 1.00 | Depth to bedrock | 1.00 | Gravel content | 0.71 |
| | | | | | | Seepage | 0.52 |
| TlF: | | | | | | | |
| Tolvar | 45 | Very limited | | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Too steep | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | Gravel content | 0.99 |
| | | | | | | Seepage | 0.52 |

Table 17.—Landfills--continued

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| TlF: | | | | | | | |
| Laveta | 30 | Very limited | | Very limited | | Very limited | |
| | | Depth to bedrock | 1.00 | Seepage | 1.00 | Depth to bedrock | 1.00 |
| | | Seepage, bottom layer | 1.00 | Depth to bedrock | 1.00 | Too steep | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | Gravel content | 0.71 |
| | | | | | | Seepage | 0.52 |
| Rock outcrop | 15 | Not rated | | Very limited | | Not rated | |
| | | | | Too steep | 1.00 | | |
| | | | | Depth to bedrock | 1.00 | | |
| | | | | Seepage | 1.00 | | |
| ToF: | | | | | | | |
| Tolvar | 85 | Very limited | | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Too steep | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | Gravel content | 0.99 |
| | | | | | | Seepage | 0.52 |
| TvD: | | | | | | | |
| Travelers | 70 | Very limited | | Not limited | | Very limited | |
| | | Depth to bedrock | 1.00 | | | Depth to bedrock | 1.00 |
| | | | | | | Seepage | 0.52 |
| | | | | | | Gravel content | 0.11 |
| Rock outcrop | 15 | Not rated | | Very limited | | Not rated | |
| | | | | Depth to bedrock | 1.00 | | |
| | | | | Seepage | 1.00 | | |

Table 17.—Landfills--continued

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| TvF: | | | | | | | |
| Travelers | 70 | Very limited | | Very limited | | Very limited | |
| | | Depth to bedrock | 1.00 | Too steep | 1.00 | Depth to bedrock | 1.00 |
| | | Too steep | 1.00 | | | Too steep | 1.00 |
| | | | | | | Seepage | 0.52 |
| | | | | | | Gravel content | 0.18 |
| Rock outcrop | 15 | Not rated | | Very limited | | Not rated | |
| | | | | Too steep | 1.00 | | |
| | | | | Depth to bedrock | 1.00 | | |
| | | | | Seepage | 1.00 | | |
| UmF: | | | | | | | |
| Uracca | 65 | Very limited | | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Too steep | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | Large stones | 0.69 |
| | | Large stones | 0.69 | | | Gravel content | 0.55 |
| | | | | | | Seepage | 0.52 |
| Morval | 20 | Very limited | | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Too steep | 1.00 | Too steep | 1.00 |
| | | Too steep | 1.00 | | | | |

Table 17.—Landfills--continued

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| UrF: | | | | | | | |
| Uracca | 50 | Very limited | | Very limited | | Very limited | |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Too steep | 1.00 |
| | | Too steep | 1.00 | Too steep | 1.00 | Large stones | 0.69 |
| | | Large stones | 0.69 | | | Gravel content | 0.55 |
| | | | | | | Seepage | 0.52 |
| Culebra | 30 | Very limited | | Very limited | | Very limited | |
| | | Depth to bedrock | 1.00 | Depth to bedrock | 1.00 | Depth to bedrock | 1.00 |
| | | Seepage, bottom layer | 1.00 | Too steep | 1.00 | Gravel content | 1.00 |
| | | Too steep | 1.00 | | | Too steep | 1.00 |
| | | | | | | Seepage | 0.52 |
| VeA: | | | | | | | |
| Ventero | 85 | Very limited | | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 | Ponding | 1.00 |
| | | Depth to saturated zone | 1.00 | Ponding | 1.00 | Depth to saturated zone | 1.00 |
| | | Ponding | 1.00 | Depth to saturated zone | 1.00 | Seepage | 0.52 |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Too clayey | 0.50 |

Table 17.—Landfills--continued

| Map symbol and soil name | Pct. of map unit | Trench sanitary landfill | | Area sanitary landfill | | Daily cover for landfill | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| VgA: | | | | | | | |
| Vastine | 45 | Very limited | | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 | Depth to saturated zone | 1.00 |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Too sandy | 1.00 |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Seepage | 1.00 |
| | | Too sandy | 1.00 | | | | |
| Gerrard | 40 | Very limited | | Very limited | | Very limited | |
| | | Flooding | 1.00 | Flooding | 1.00 | Depth to saturated zone | 1.00 |
| | | Depth to saturated zone | 1.00 | Depth to saturated zone | 1.00 | Seepage | 1.00 |
| | | Seepage, bottom layer | 1.00 | Seepage | 1.00 | Too sandy | 0.50 |
| | | Too sandy | 0.50 | | | Gravel content | 0.01 |
| W: | | | | | | | |
| Water | 100 | Not rated | | Not rated | | Not rated | |

**Table 18.--Source of gravel and sand**

**(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)**

| Map symbol and soil name | Pct. of map unit | Potential source of gravel | | Potential source of sand | |
|---|---|---|---|---|---|
| | | Rating class | Value | Rating class | Value |
| AmC: | | | | | |
| Amalia | 85 | Fair | | Fair | |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| | | Bottom layer | 0.28 | Bottom layer | 0.10 |
| AmE: | | | | | |
| Amalia | 85 | Fair | | Fair | |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| | | Bottom layer | 0.28 | Bottom layer | 0.10 |
| Aq: | | | | | |
| Cumulic Cryaquolls | 85 | Fair | | Fair | |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| | | Bottom layer | 0.85 | Bottom layer | 0.02 |
| BfA: | | | | | |
| Blanfort | 85 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| BfD: | | | | | |
| Blanfort | 85 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| CsA: | | | | | |
| Cososa | 85 | Poor | | Fair | |
| | | Bottom layer | 0.00 | Bottom layer | 0.02 |
| | | Thickest layer | 0.00 | Thickest layer | 0.03 |
| CsD: | | | | | |
| Cososa | 85 | Poor | | Fair | |
| | | Bottom layer | 0.00 | Bottom layer | 0.02 |
| | | Thickest layer | 0.00 | Thickest layer | 0.03 |
| CtA: | | | | | |
| Costilla | 85 | Poor | | Fair | |
| | | Bottom layer | 0.00 | Thickest layer | 0.10 |
| | | Thickest layer | 0.00 | Bottom layer | 0.51 |
| CuF: | | | | | |
| Comodore | 50 | Poor | | Poor | |
| | | Thickest layer | 0.00 | Bottom layer | 0.00 |
| | | Bottom layer | 0.00 | Thickest layer | 0.00 |
| Rock outcrop | 20 | Not rated | | Not rated | |
| Uracca | 20 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Thickest layer | 0.00 |
| | | Thickest layer | 0.00 | Bottom layer | 0.00 |

Table 18.--Source of gravel and sand--continued

| Map symbol and soil name | Pct. of map unit | Potential source of gravel | | Potential source of sand | |
|---|---|---|---|---|---|
| | | Rating class | Value | Rating class | Value |
| DAM: | | | | | |
| Dam | 100 | Not rated | | Not rated | |
| DrD: | | | | | |
| Durreo | 85 | Poor | | Fair | |
| | | Bottom layer | 0.00 | Thickest layer | 0.03 |
| | | Thickest layer | 0.00 | Bottom layer | 0.05 |
| EaA: | | | | | |
| Eastdale | 85 | Poor | | Fair | |
| | | Bottom layer | 0.00 | Thickest layer | 0.00 |
| | | Thickest layer | 0.00 | Bottom layer | 0.02 |
| FLB: | | | | | |
| Fluvents | 80 | Fair | | Fair | |
| | | Bottom layer | 0.00 | Bottom layer | 0.46 |
| | | Thickest layer | 0.25 | Thickest layer | 0.46 |
| FtA: | | | | | |
| Fuertes | 85 | Fair | | Fair | |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| | | Bottom layer | 0.07 | Bottom layer | 0.38 |
| GmE: | | | | | |
| Aquic Dystrocryepts- | 90 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| Gn: | | | | | |
| Angostura | 90 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| GP: | | | | | |
| Pits, gravel | 100 | Not rated | | Not rated | |
| GpA: | | | | | |
| Graypoint | 85 | Fair | | Fair | |
| | | Bottom layer | 0.60 | Thickest layer | 0.64 |
| | | Thickest layer | 0.60 | Bottom layer | 0.86 |
| GrA: | | | | | |
| Grayco | 85 | Fair | | Fair | |
| | | Thickest layer | 0.00 | Bottom layer | 0.64 |
| | | Bottom layer | 0.28 | Thickest layer | 0.70 |
| GrC: | | | | | |
| Grayco | 85 | Fair | | Fair | |
| | | Thickest layer | 0.00 | Bottom layer | 0.64 |
| | | Bottom layer | 0.28 | Thickest layer | 0.70 |
| Ho: | | | | | |
| Hooper, loamy sand-- | 70 | Poor | | Fair | |
| | | Bottom layer | 0.00 | Thickest layer | 0.09 |
| | | Thickest layer | 0.00 | Bottom layer | 0.86 |
| Hooper, clay loam--- | 20 | Poor | | Fair | |
| | | Bottom layer | 0.00 | Thickest layer | 0.00 |
| | | Thickest layer | 0.00 | Bottom layer | 0.86 |

Table 18.--Source of gravel and sand--continued

| Map symbol and soil name | Pct. of map unit | Potential source of gravel | | Potential source of sand | |
|---|---|---|---|---|---|
| | | Rating class | Value | Rating class | Value |
| Hp: | | | | | |
| Hooper, clay loam--- | 65 | Poor | | Fair | |
| | | Bottom layer | 0.00 | Thickest layer | 0.00 |
| | | Thickest layer | 0.00 | Bottom layer | 0.86 |
| Hooper, loamy sand-- | 30 | Poor | | Fair | |
| | | Bottom layer | 0.00 | Thickest layer | 0.09 |
| | | Thickest layer | 0.00 | Bottom layer | 0.86 |
| KbA: | | | | | |
| Kibin---------- | 85 | Fair | | Fair | |
| | | Bottom layer | 0.50 | Thickest layer | 0.25 |
| | | Thickest layer | 0.59 | Bottom layer | 0.86 |
| KbC: | | | | | |
| Kibin---------- | 85 | Fair | | Fair | |
| | | Bottom layer | 0.50 | Thickest layer | 0.21 |
| | | Thickest layer | 0.59 | Bottom layer | 0.86 |
| LbF: | | | | | |
| Lambe---------- | 60 | Fair | | Fair | |
| | | Bottom layer | 0.26 | Thickest layer | 0.00 |
| | | Thickest layer | 0.29 | Bottom layer | 0.05 |
| Woodhall---------- | 30 | Poor | | Poor | |
| | | Thickest layer | 0.00 | Bottom layer | 0.00 |
| | | Bottom layer | 0.00 | Thickest layer | 0.00 |
| LeF: | | | | | |
| Fallriver---------- | 65 | Fair | | Fair | |
| | | Thickest layer | 0.15 | Thickest layer | 0.00 |
| | | Bottom layer | 0.32 | Bottom layer | 0.06 |
| Rock outcrop-------- | 20 | Not rated | | Not rated | |
| LH: | | | | | |
| Leadville---------- | 60 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| Howlett---------- | 30 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| M: | | | | | |
| Pits, mine---------- | 100 | Not rated | | Not rated | |
| McA: | | | | | |
| McGinty---------- | 85 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| McB: | | | | | |
| McGinty---------- | 85 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |

Table 18.--Source of gravel and sand--continued

| Map symbol and soil name | Pct. of map unit | Potential source of gravel | | Potential source of sand | |
|---|---|---|---|---|---|
| | | Rating class | Value | Rating class | Value |
| McC: | | | | | |
| McGinty | 85 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| MR: | | | | | |
| Mirror | 70 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| Rock outcrop | 20 | Not rated | | Not rated | |
| MsA: | | | | | |
| Mosca | 85 | Poor | | Fair | |
| | | Bottom layer | 0.00 | Thickest layer | 0.00 |
| | | Thickest layer | 0.00 | Bottom layer | 0.72 |
| MtA: | | | | | |
| Mesita | 85 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| MuC: | | | | | |
| Morval | 65 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| Uracca | 20 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Thickest layer | 0.00 |
| | | Thickest layer | 0.00 | Bottom layer | 0.00 |
| MuE: | | | | | |
| Morval | 60 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| Uracca | 20 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Thickest layer | 0.00 |
| | | Thickest layer | 0.00 | Bottom layer | 0.00 |
| PtC: | | | | | |
| Potrio | 85 | Poor | | Poor | |
| | | Thickest layer | 0.00 | Bottom layer | 0.00 |
| | | Bottom layer | 0.00 | Thickest layer | 0.00 |
| RF: | | | | | |
| Rock outcrop | 50 | Not rated | | Not rated | |
| Rubble land | 50 | Not rated | | Not rated | |
| RrA: | | | | | |
| Trinchera | 85 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| RrB: | | | | | |
| Trinchera | 85 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |

Table 18.--Source of gravel and sand--continued

| Map symbol and soil name | Pct. of map unit | Potential source of gravel | | Potential source of sand | |
|---|---|---|---|---|---|
| | | Rating class | Value | Rating class | Value |
| RrD: | | | | | |
| Trinchera | 85 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| ShA: | | | | | |
| Shawa | 85 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| ShC: | | | | | |
| Shawa | 85 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| SL: | | | | | |
| Scandard | 45 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| Leadville | 30 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| Rock outcrop | 15 | Not rated | | Not rated | |
| SpD: | | | | | |
| Sanpedro | 50 | Poor | | Poor | |
| | | Thickest layer | 0.00 | Bottom layer | 0.00 |
| | | Bottom layer | 0.00 | Thickest layer | 0.00 |
| Potrio | 35 | Poor | | Poor | |
| | | Thickest layer | 0.00 | Bottom layer | 0.00 |
| | | Bottom layer | 0.00 | Thickest layer | 0.00 |
| Rock outcrop | 15 | Not rated | | Not rated | |
| SpF: | | | | | |
| Sanpedro | 50 | Poor | | Poor | |
| | | Thickest layer | 0.00 | Bottom layer | 0.00 |
| | | Bottom layer | 0.00 | Thickest layer | 0.00 |
| Potrio | 30 | Poor | | Poor | |
| | | Thickest layer | 0.00 | Bottom layer | 0.00 |
| | | Bottom layer | 0.00 | Thickest layer | 0.00 |
| Rock outcrop | 20 | Not rated | | Not rated | |
| StB: | | | | | |
| Stunner | 85 | Poor | | Fair | |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| | | Bottom layer | 0.00 | Bottom layer | 0.64 |
| StC: | | | | | |
| Stunner | 85 | Poor | | Fair | |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| | | Bottom layer | 0.00 | Bottom layer | 0.64 |

Table 18.--Source of gravel and sand--continued

| Map symbol and soil name | Pct. of map unit | Potential source of gravel | | Potential source of sand | |
|---|---|---|---|---|---|
| | | Rating class | Value | Rating class | Value |
| SzF: | | | | | |
| Seitz | 60 | Fair | | Fair | |
| | | Bottom layer | 0.06 | Thickest layer | 0.00 |
| | | Thickest layer | 0.06 | Bottom layer | 0.03 |
| Tolvar | 20 | Fair | | Fair | |
| | | Bottom layer | 0.12 | Thickest layer | 0.00 |
| | | Thickest layer | 0.35 | Bottom layer | 0.02 |
| TlD: | | | | | |
| Tolvar | 65 | Fair | | Fair | |
| | | Bottom layer | 0.12 | Thickest layer | 0.00 |
| | | Thickest layer | 0.35 | Bottom layer | 0.02 |
| Laveta | 25 | Fair | | Poor | |
| | | Thickest layer | 0.00 | Bottom layer | 0.00 |
| | | Bottom layer | 0.14 | Thickest layer | 0.00 |
| TlF: | | | | | |
| Tolvar | 45 | Fair | | Fair | |
| | | Bottom layer | 0.12 | Thickest layer | 0.00 |
| | | Thickest layer | 0.35 | Bottom layer | 0.02 |
| Laveta | 30 | Fair | | Poor | |
| | | Thickest layer | 0.00 | Bottom layer | 0.00 |
| | | Bottom layer | 0.14 | Thickest layer | 0.00 |
| Rock outcrop | 15 | Not rated | | Not rated | |
| ToF: | | | | | |
| Tolvar | 85 | Fair | | Fair | |
| | | Bottom layer | 0.12 | Thickest layer | 0.00 |
| | | Thickest layer | 0.35 | Bottom layer | 0.02 |
| TvD: | | | | | |
| Travelers | 70 | Poor | | Fair | |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| | | Bottom layer | 0.00 | Bottom layer | 0.01 |
| Rock outcrop | 15 | Not rated | | Not rated | |
| TvF: | | | | | |
| Travelers | 70 | Poor | | Fair | |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| | | Bottom layer | 0.00 | Bottom layer | 0.01 |
| Rock outcrop | 15 | Not rated | | Not rated | |
| UmF: | | | | | |
| Uracca | 65 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Thickest layer | 0.00 |
| | | Thickest layer | 0.00 | Bottom layer | 0.00 |
| Morval | 20 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |

Table 18.--Source of gravel and sand--continued

| Map symbol and soil name | Pct. of map unit | Potential source of gravel | | Potential source of sand | |
|---|---|---|---|---|---|
| | | Rating class | Value | Rating class | Value |
| UrF: | | | | | |
| Uracca | 50 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Thickest layer | 0.00 |
| | | Thickest layer | 0.00 | Bottom layer | 0.00 |
| Culebra | 30 | Fair | | Fair | |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| | | Bottom layer | 0.18 | Bottom layer | 0.11 |
| VeA: | | | | | |
| Ventero | 85 | Poor | | Poor | |
| | | Bottom layer | 0.00 | Bottom layer | 0.00 |
| | | Thickest layer | 0.00 | Thickest layer | 0.00 |
| VgA: | | | | | |
| Vastine | 45 | Poor | | Fair | |
| | | Bottom layer | 0.00 | Bottom layer | 0.28 |
| | | Thickest layer | 0.00 | Thickest layer | 0.38 |
| Gerrard | 40 | Fair | | Fair | |
| | | Thickest layer | 0.00 | Bottom layer | 0.10 |
| | | Bottom layer | 0.60 | Thickest layer | 0.64 |
| W: | | | | | |
| Water | 100 | Not rated | | Not rated | |

**Table 19.--Source of reclamation material, roadfill, and topsoil**

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| AmC: | | | | | | | |
| Amalia | 85 | Fair | | Fair | | Poor | |
| | | Organic matter content low | 0.12 | Cobble content | 0.91 | Rock fragments | 0.00 |
| | | Droughty | 0.42 | | | Hard to reclaim (rock fragments) | 0.00 |
| | | Carbonate content | 0.84 | | | | |
| AmE: | | | | | | | |
| Amalia | 85 | Fair | | Fair | | Poor | |
| | | Organic matter content low | 0.12 | Slope | 0.50 | Rock fragments | 0.00 |
| | | Droughty | 0.42 | Cobble content | 0.91 | Hard to reclaim (rock fragments) | 0.00 |
| | | Carbonate content | 0.84 | | | Slope | 0.00 |
| Aq: | | | | | | | |
| Cumulic Cryaquolls | 85 | Fair | | Poor | | Poor | |
| | | Droughty | 0.97 | Wetness depth | 0.00 | Wetness depth | 0.00 |
| | | Water erosion | 0.99 | | | Hard to reclaim (rock fragments) | 0.00 |
| BfA: | | | | | | | |
| Blanfort | 85 | Fair | | Good | | Good | |
| | | Organic matter content low | 0.12 | | | | |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| BfD: | | | | | | | |
| Blanfort | 85 | Fair | | Good | | Good | |
| | | Organic matter content low | 0.12 | | | | |
| CsA: | | | | | | | |
| Cososa | 85 | Poor | | Good | | Poor | |
| | | Wind erosion | 0.00 | | | Hard to reclaim (rock fragments) | 0.00 |
| | | Organic matter content low | 0.12 | | | Rock fragments | 0.12 |
| | | Carbonate content | 0.92 | | | Sodium content | 0.90 |
| CsD: | | | | | | | |
| Cososa | 85 | Poor | | Good | | Poor | |
| | | Wind erosion | 0.00 | | | Hard to reclaim (rock fragments) | 0.00 |
| | | Organic matter content low | 0.12 | | | Rock fragments | 0.12 |
| | | Carbonate content | 0.92 | | | Sodium content | 0.90 |
| CtA: | | | | | | | |
| Costilla | 85 | Poor | | Good | | Poor | |
| | | Wind erosion | 0.00 | | | Rock fragments | 0.00 |
| | | Too sandy | 0.04 | | | Too sandy | 0.04 |
| | | Organic matter content low | 0.12 | | | Hard to reclaim (rock fragments) | 0.88 |
| | | Droughty | 0.13 | | | | |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| CuF: | | | | | | | |
| Comodore | 50 | Poor | | Poor | | Poor | |
| | | Droughty | 0.00 | Depth to bedrock | 0.00 | Slope | 0.00 |
| | | Depth to bedrock | 0.00 | Slope | 0.00 | Rock fragments | 0.00 |
| | | Cobble content | 0.01 | Cobble content | 0.89 | Depth to bedrock | 0.00 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| Uracca | 20 | Poor | | Poor | | Poor | |
| | | Droughty | 0.00 | Cobble content | 0.00 | Rock fragments | 0.00 |
| | | Cobble content | 0.31 | Slope | 0.00 | Hard to reclaim (rock fragments) | 0.00 |
| | | Organic matter content low | 0.50 | | | Slope | 0.00 |
| DAM: | | | | | | | |
| Dam | 100 | Not rated | | Not rated | | Not rated | |
| DrD: | | | | | | | |
| Durreo | 85 | Poor | | Fair | | Poor | |
| | | Too alkaline | 0.00 | Cobble content | 0.39 | Hard to reclaim (rock fragments) | 0.00 |
| | | Carbonate content | 0.00 | | | Rock fragments | 0.00 |
| | | Organic matter content low | 0.50 | | | Too sandy | 0.92 |
| | | Too sandy | 0.92 | | | Carbonate content | 0.96 |
| | | Cobble content | 0.98 | | | | |
| | | Droughty | 0.99 | | | | |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| EaA: | | | | | | | |
| Eastdale | 85 | Fair | | Fair | | Fair | |
| | | Organic matter content low | 0.12 | No shrink-swell limitation | 0.99 | Too clayey | 0.72 |
| | | Too clayey | 0.92 | | | | |
| | | Water erosion | 0.99 | | | | |
| FLB: | | | | | | | |
| Fluvents | 80 | Poor | | Poor | | Poor | |
| | | Too sandy | 0.00 | Wetness depth | 0.00 | Hard to reclaim (dense layer) | 0.00 |
| | | Droughty | 0.00 | Cobble content | 0.97 | Too sandy | 0.00 |
| | | Organic matter content low | 0.01 | | | Rock fragments | 0.00 |
| | | | | | | Hard to reclaim (rock fragments) | 0.00 |
| | | | | | | Wetness depth | 0.00 |
| FtA: | | | | | | | |
| Fuertes | 85 | Fair | | Fair | | Poor | |
| | | Organic matter content low | 0.50 | Wetness depth | 0.89 | Hard to reclaim (rock fragments) | 0.00 |
| | | Water erosion | 0.99 | | | Wetness depth | 0.89 |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| GmE: | | | | | | | |
| Aquic Dystrocryepts- | 90 | Fair | | Fair | | Poor | |
| | | Organic matter content low | 0.12 | Slope | 0.82 | Hard to reclaim (rock fragments) | 0.00 |
| | | Too acid | 0.50 | Wetness depth | 0.89 | Rock fragments | 0.00 |
| | | Droughty | 0.95 | | | Slope | 0.00 |
| | | | | | | Too acid | 0.88 |
| | | | | | | Wetness depth | 0.89 |
| Gn: | | | | | | | |
| Angostura | 90 | Fair | | Poor | | Poor | |
| | | Organic matter content low | 0.12 | Slope | 0.00 | Slope | 0.00 |
| | | Stone content | 0.68 | Cobble content | 0.61 | Rock fragments | 0.00 |
| | | Too acid | 0.84 | Stones | 0.84 | Hard to reclaim (rock fragments) | 0.00 |
| GP: | | | | | | | |
| Pits, gravel | 100 | Not rated | | Not rated | | Not rated | |
| GpA: | | | | | | | |
| Graypoint | 85 | Poor | | Good | | Poor | |
| | | Too sandy | 0.00 | | | Too sandy | 0.00 |
| | | Organic matter content low | 0.00 | | | Hard to reclaim (rock fragments) | 0.00 |
| | | Droughty | 0.02 | | | Rock fragments | 0.00 |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| GrA: | | | | | | | |
| Grayco | 85 | Poor | | Good | | Poor | |
| | | Too sandy | 0.00 | | | Too sandy | 0.00 |
| | | Organic matter content low | 0.12 | | | Rock fragments | 0.00 |
| | | Droughty | 0.34 | | | Hard to reclaim (rock fragments) | 0.00 |
| GrC: | | | | | | | |
| Grayco | 85 | Poor | | Good | | Poor | |
| | | Too sandy | 0.00 | | | Too sandy | 0.00 |
| | | Organic matter content low | 0.12 | | | Rock fragments | 0.00 |
| | | Droughty | 0.34 | | | Hard to reclaim (rock fragments) | 0.00 |
| Ho: | | | | | | | |
| Hooper, loamy sand | 70 | Poor | | Good | | Fair | |
| | | Wind erosion | 0.00 | | | Too sandy | 0.02 |
| | | Sodium content | 0.00 | | | Sodium content | 0.98 |
| | | Too alkaline | 0.00 | | | | |
| | | Too sandy | 0.02 | | | | |
| | | Organic matter content low | 0.12 | | | | |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| Ho: | | | | | | | |
| Hooper, clay loam--- | 20 | Poor | | Good | | Poor | |
| | | Sodium content | 0.00 | | | Sodium content | 0.00 |
| | | Too alkaline | 0.00 | | | Too clayey | 0.21 |
| | | Too clayey | 0.32 | | | | |
| | | Organic matter content low | 0.50 | | | | |
| | | Carbonate content | 0.92 | | | | |
| Hp: | | | | | | | |
| Hooper, clay loam--- | 65 | Poor | | Good | | Poor | |
| | | Sodium content | 0.00 | | | Sodium content | 0.00 |
| | | Too alkaline | 0.00 | | | Too clayey | 0.21 |
| | | Too clayey | 0.32 | | | | |
| | | Organic matter content low | 0.50 | | | | |
| | | Carbonate content | 0.92 | | | | |
| Hooper, loamy sand-- | 30 | Poor | | Good | | Fair | |
| | | Wind erosion | 0.00 | | | Too sandy | 0.02 |
| | | Sodium content | 0.00 | | | Sodium content | 0.98 |
| | | Too alkaline | 0.00 | | | | |
| | | Too sandy | 0.02 | | | | |
| | | Organic matter content low | 0.12 | | | | |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| KbA: | | | | | | | |
| Kibin | 85 | Fair | | Good | | Poor | |
| | | Too clayey | 0.08 | | | Hard to reclaim (rock fragments) | 0.00 |
| | | Organic matter content low | 0.12 | | | Too clayey | 0.05 |
| | | | | | | Rock fragments | 0.88 |
| KbC: | | | | | | | |
| Kibin | 85 | Fair | | Good | | Poor | |
| | | Too clayey | 0.10 | | | Hard to reclaim (rock fragments) | 0.00 |
| | | Organic matter content low | 0.12 | | | Too clayey | 0.06 |
| | | | | | | Rock fragments | 0.88 |
| LbF: | | | | | | | |
| Lambe | 60 | Fair | | Poor | | Poor | |
| | | Organic matter content low | 0.50 | Slope | 0.00 | Rock fragments | 0.00 |
| | | Droughty | 0.51 | Cobble content | 0.61 | Hard to reclaim (rock fragments) | 0.00 |
| | | | | | | Slope | 0.00 |
| Woodhall | 30 | Poor | | Poor | | Poor | |
| | | Droughty | 0.00 | Depth to bedrock | 0.00 | Rock fragments | 0.00 |
| | | Depth to bedrock | 0.71 | Cobble content | 0.03 | Slope | 0.04 |
| | | Cobble content | 0.82 | | | Depth to bedrock | 0.71 |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| LeF: | | | | | | | |
| Fallriver | 65 | Fair | | Poor | | Poor | |
| | | Droughty | 0.37 | Slope | 0.00 | Rock fragments | 0.00 |
| | | Organic matter content low | 0.50 | Cobble content | 0.77 | Hard to reclaim (rock fragments) | 0.00 |
| | | Too acid | 0.61 | | | Slope | 0.00 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| LH: | | | | | | | |
| Leadville | 60 | Fair | | Poor | | Poor | |
| | | Organic matter content low | 0.12 | Slope | 0.00 | Slope | 0.00 |
| | | Cobble content | 0.63 | Cobble content | 0.10 | Hard to reclaim (rock fragments) | 0.00 |
| | | Too acid | 0.68 | | | Rock fragments | 0.00 |
| | | Droughty | 0.98 | | | | |
| Howlett | 30 | Fair | | Fair | | Poor | |
| | | Organic matter content low | 0.12 | Slope | 0.08 | Hard to reclaim (rock fragments) | 0.00 |
| | | Too acid | 0.84 | | | Rock fragments | 0.00 |
| | | | | | | Slope | 0.00 |
| M: | | | | | | | |
| Pits, mine | 100 | Not rated | | Not rated | | Not rated | |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| McA: | | | | | | | |
| McGinty | 85 | Fair | | Good | | Fair | |
| | | Organic matter content low | 0.12 | | | Carbonate content | 0.95 |
| | | Carbonate content | 0.16 | | | | |
| McB: | | | | | | | |
| McGinty | 85 | Fair | | Good | | Fair | |
| | | Organic matter content low | 0.12 | | | Carbonate content | 0.95 |
| | | Carbonate content | 0.16 | | | | |
| McC: | | | | | | | |
| McGinty | 85 | Fair | | Good | | Fair | |
| | | Organic matter content low | 0.12 | | | Carbonate content | 0.95 |
| | | Carbonate content | 0.16 | | | | |
| MR: | | | | | | | |
| Mirror | 70 | Poor | | Poor | | Poor | |
| | | Stone content | 0.00 | Slope | 0.00 | Slope | 0.00 |
| | | Droughty | 0.00 | Depth to bedrock | 0.00 | Rock fragments | 0.00 |
| | | Depth to bedrock | 0.16 | Stones | 0.00 | Depth to bedrock | 0.16 |
| | | Too acid | 0.50 | Cobble content | 0.68 | Too acid | 0.88 |
| | | Cobble content | 0.62 | | | | |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| MsA: | | | | | | | |
| Mosca | 85 | Poor | | Good | | Poor | |
| | | Wind erosion | 0.00 | | | Sodium content | 0.00 |
| | | Droughty | 0.00 | | | Too sandy | 0.00 |
| | | Sodium content | 0.00 | | | Salinity | 0.50 |
| | | Too sandy | 0.00 | | | | |
| | | Too alkaline | 0.00 | | | | |
| | | Salinity | 0.12 | | | | |
| | | Carbonate content | 0.32 | | | | |
| | | Organic matter content low | 0.50 | | | | |
| MtA: | | | | | | | |
| Mesita | 85 | Poor | | Poor | | Poor | |
| | | Sodium content | 0.00 | Low strength | 0.00 | Sodium content | 0.00 |
| | | Too alkaline | 0.00 | Shrink-swell | 0.93 | Too clayey | 0.00 |
| | | Too clayey | 0.00 | | | Salinity | 0.00 |
| | | Salinity | 0.00 | | | | |
| | | Organic matter content low | 0.12 | | | | |
| | | Water erosion | 0.99 | | | | |
| MuC: | | | | | | | |
| Morval | 65 | Fair | | Good | | Fair | |
| | | Organic matter content low | 0.12 | | | Rock fragments | 0.68 |
| | | Carbonate content | 0.68 | | | | |
| | | Water erosion | 0.99 | | | | |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| MuC: | | | | | | | |
| Uracca | 20 | Poor | | Poor | | Poor | |
| | | Droughty | 0.00 | Cobble content | 0.00 | Rock fragments | 0.00 |
| | | Cobble content | 0.31 | | | Hard to reclaim (rock fragments) | 0.00 |
| | | Organic matter content low | 0.50 | | | | |
| MuE: | | | | | | | |
| Morval | 60 | Fair | | Fair | | Poor | |
| | | Organic matter content low | 0.12 | Slope | 0.50 | Slope | 0.00 |
| | | Carbonate content | 0.68 | | | Rock fragments | 0.68 |
| | | Water erosion | 0.99 | | | | |
| Uracca | 20 | Poor | | Poor | | Poor | |
| | | Droughty | 0.00 | Cobble content | 0.00 | Rock fragments | 0.00 |
| | | Cobble content | 0.31 | Slope | 0.00 | Hard to reclaim (rock fragments) | 0.00 |
| | | Organic matter content low | 0.50 | | | Slope | 0.00 |
| PtC: | | | | | | | |
| Potrio | 85 | Poor | | Fair | | Poor | |
| | | Carbonate content | 0.00 | Depth to bedrock | 0.04 | Hard to reclaim (rock fragments) | 0.00 |
| | | Droughty | 0.49 | | | Rock fragments | 0.00 |
| RF: | | | | | | | |
| Rock outcrop | 50 | Not rated | | Not rated | | Not rated | |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| RF: | | | | | | | |
| Rubble land | 50 | Not rated | | Poor | | Not rated | |
| | | | | Slope | 0.00 | | |
| | | | | Stones | 0.00 | | |
| | | | | Cobble content | 0.96 | | |
| RrA: | | | | | | | |
| Trinchera | 85 | Poor | | Good | | Fair | |
| | | Carbonate content | 0.00 | | | Carbonate content | 0.85 |
| | | Organic matter content low | 0.12 | | | | |
| RrB: | | | | | | | |
| Trinchera | 85 | Poor | | Good | | Fair | |
| | | Carbonate content | 0.00 | | | Carbonate content | 0.85 |
| | | Organic matter content low | 0.12 | | | | |
| RrD: | | | | | | | |
| Trinchera | 85 | Poor | | Good | | Fair | |
| | | Carbonate content | 0.00 | | | Carbonate content | 0.85 |
| | | Organic matter content low | 0.12 | | | | |
| ShA: | | | | | | | |
| Shawa | 85 | Good | | Fair | | Fair | |
| | | | | Shrink-swell | 0.97 | Hard to reclaim (rock fragments) | 0.61 |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| ShC: | | | | | | | |
| Shawa | 85 | Good | | Fair | | Fair | |
| | | | | Shrink-swell | 0.97 | Hard to reclaim (rock fragments) | 0.61 |
| SL: | | | | | | | |
| Scandard | 45 | Poor | | Poor | | Poor | |
| | | Droughty | 0.00 | Slope | 0.00 | Slope | 0.00 |
| | | Organic matter content low | 0.12 | Depth to bedrock | 0.00 | Rock fragments | 0.00 |
| | | Depth to bedrock | 0.29 | | | Depth to bedrock | 0.29 |
| | | Too acid | 0.68 | | | | |
| Leadville | 30 | Fair | | Poor | | Poor | |
| | | Organic matter content low | 0.12 | Slope | 0.00 | Slope | 0.00 |
| | | Cobble content | 0.63 | Cobble content | 0.10 | Hard to reclaim (rock fragments) | 0.00 |
| | | Too acid | 0.68 | | | Rock fragments | 0.00 |
| | | Droughty | 0.98 | | | | |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| SpD: | | | | | | | |
| Sanpedro | 50 | Poor | | Poor | | Poor | |
| | | Droughty | 0.00 | Depth to bedrock | 0.00 | Rock fragments | 0.00 |
| | | Depth to bedrock | 0.00 | Cobble content | 0.92 | Depth to bedrock | 0.00 |
| | | Carbonate content | 0.00 | | | Carbonate content | 0.78 |
| | | Cobble content | 0.10 | | | | |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SpD: | | | | | | | |
| Potrio | 35 | Poor | | Fair | | Poor | |
| | | Carbonate content | 0.00 | Depth to bedrock | 0.04 | Hard to reclaim (rock fragments) | 0.00 |
| | | Droughty | 0.49 | | | Rock fragments | 0.00 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| SpF: | | | | | | | |
| Sanpedro | 50 | Poor | | Poor | | Poor | |
| | | Droughty | 0.00 | Depth to bedrock | 0.00 | Rock fragments | 0.00 |
| | | Depth to bedrock | 0.00 | Slope | 0.00 | Depth to bedrock | 0.00 |
| | | Carbonate content | 0.00 | Cobble content | 0.92 | Slope | 0.00 |
| | | Cobble content | 0.10 | | | Carbonate content | 0.78 |
| Potrio | 30 | Poor | | Fair | | Poor | |
| | | Carbonate content | 0.00 | Depth to bedrock | 0.04 | Hard to reclaim (rock fragments) | 0.00 |
| | | Droughty | 0.49 | | | Rock fragments | 0.00 |
| | | | | | | Slope | 0.00 |
| Rock outcrop | 20 | Not rated | | Not rated | | Not rated | |
| StB: | | | | | | | |
| Stunner | 85 | Poor | | Good | | Good | |
| | | Carbonate content | 0.00 | | | | |
| | | Organic matter content low | 0.12 | | | | |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| StC: | | | | | | | |
| Stunner | 85 | Poor | | Good | | Good | |
| | | Carbonate content | 0.00 | | | | |
| | | Organic matter content low | 0.12 | | | | |
| SzF: | | | | | | | |
| Seitz | 60 | Fair | | Poor | | Poor | |
| | | Too clayey | 0.08 | Slope | 0.00 | Hard to reclaim (rock fragments) | 0.00 |
| | | Organic matter content low | 0.50 | Cobble content | 0.54 | Rock fragments | 0.00 |
| | | Too acid | 0.74 | | | Slope | 0.00 |
| | | Cobble content | 0.95 | | | Too clayey | 0.05 |
| | | Droughty | 0.97 | | | | |
| Tolvar | 20 | Fair | | Poor | | Poor | |
| | | Organic matter content low | 0.12 | Slope | 0.00 | Rock fragments | 0.00 |
| | | Too acid | 0.74 | | | Hard to reclaim (rock fragments) | 0.00 |
| | | Droughty | 0.97 | | | Slope | 0.00 |
| TlD: | | | | | | | |
| Tolvar | 65 | Fair | | Good | | Poor | |
| | | Organic matter content low | 0.12 | | | Rock fragments | 0.00 |
| | | Too acid | 0.74 | | | Hard to reclaim (rock fragments) | 0.00 |
| | | Droughty | 0.97 | | | | |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| TlD: | | | | | | | |
| Laveta | 25 | Poor | | Poor | | Poor | |
| | | Droughty | 0.00 | Depth to bedrock | 0.00 | Rock fragments | 0.00 |
| | | Organic matter content low | 0.12 | | | Depth to bedrock | 0.21 |
| | | Depth to bedrock | 0.21 | | | | |
| | | Too acid | 0.74 | | | | |
| TlF: | | | | | | | |
| Tolvar | 45 | Fair | | Poor | | Poor | |
| | | Organic matter content low | 0.12 | Slope | 0.00 | Rock fragments | 0.00 |
| | | Too acid | 0.74 | | | Hard to reclaim (rock fragments) | 0.00 |
| | | Droughty | 0.97 | | | Slope | 0.00 |
| Laveta | 30 | Poor | | Poor | | Poor | |
| | | Droughty | 0.00 | Depth to bedrock | 0.00 | Rock fragments | 0.00 |
| | | Organic matter content low | 0.12 | | | Slope | 0.00 |
| | | Depth to bedrock | 0.21 | | | Depth to bedrock | 0.21 |
| | | Too acid | 0.74 | | | | |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| ToF: | | | | | | | |
| Tolvar | 85 | Fair | | Poor | | Poor | |
| | | Organic matter content low | 0.12 | Slope | 0.00 | Rock fragments | 0.00 |
| | | Too acid | 0.74 | | | Hard to reclaim (rock fragments) | 0.00 |
| | | Droughty | 0.97 | | | Slope | 0.00 |
| TvD: | | | | | | | |
| Travelers | 70 | Poor | | Poor | | Poor | |
| | | Droughty | 0.00 | Depth to bedrock | 0.00 | Rock fragments | 0.00 |
| | | Depth to bedrock | 0.00 | | | Depth to bedrock | 0.00 |
| | | Organic matter content low | 0.00 | | | | |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |
| TvF: | | | | | | | |
| Travelers | 70 | Poor | | Poor | | Poor | |
| | | Droughty | 0.00 | Depth to bedrock | 0.00 | Rock fragments | 0.00 |
| | | Depth to bedrock | 0.00 | Slope | 0.50 | Depth to bedrock | 0.00 |
| | | Organic matter content low | 0.00 | | | Slope | 0.00 |
| Rock outcrop | 15 | Not rated | | Not rated | | Not rated | |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| UmF: | | | | | | | |
| Uracca | 65 | Poor | | Poor | | Poor | |
| | | Droughty | 0.00 | Cobble content | 0.00 | Rock fragments | 0.00 |
| | | Cobble content | 0.31 | Slope | 0.00 | Hard to reclaim (rock fragments) | 0.00 |
| | | Organic matter content low | 0.50 | | | Slope | 0.00 |
| Morval | 20 | Fair | | Fair | | Poor | |
| | | Organic matter content low | 0.12 | Slope | 0.50 | Slope | 0.00 |
| | | Carbonate content | 0.68 | | | Rock fragments | 0.68 |
| | | Water erosion | 0.99 | | | | |
| UrF: | | | | | | | |
| Uracca | 50 | Poor | | Poor | | Poor | |
| | | Droughty | 0.00 | Cobble content | 0.00 | Rock fragments | 0.00 |
| | | Cobble content | 0.31 | Slope | 0.00 | Hard to reclaim (rock fragments) | 0.00 |
| | | Organic matter content low | 0.50 | | | Slope | 0.00 |
| Culebra | 30 | Poor | | Poor | | Poor | |
| | | Droughty | 0.00 | Depth to bedrock | 0.00 | Rock fragments | 0.00 |
| | | Depth to bedrock | 0.00 | Slope | 0.00 | Depth to bedrock | 0.00 |
| | | Organic matter content low | 0.12 | | | Slope | 0.00 |
| | | Too sandy | 0.32 | | | Too sandy | 0.32 |

Table 19.--Source of reclamation material, roadfill, and topsoil--continued

| Map symbol and soil name | Pct. of map unit | Potential source of reclamation material | | Potential source of roadfill | | Potential source of topsoil | |
|---|---|---|---|---|---|---|---|
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| VeA: | | | | | | | |
| Ventero | 85 | Fair | | Poor | | Poor | |
| | | Too acid | 0.74 | Wetness depth | 0.00 | Wetness depth | 0.00 |
| VgA: | | | | | | | |
| Vastine | 45 | Poor | | Fair | | Poor | |
| | | Too sandy | 0.00 | Wetness depth | 0.04 | Too sandy | 0.00 |
| | | Organic matter content low | 0.50 | | | Wetness depth | 0.04 |
| | | Water erosion | 0.99 | | | | |
| Gerrard | 40 | Fair | | Fair | | Poor | |
| | | Too sandy | 0.38 | Wetness depth | 0.04 | Hard to reclaim (rock fragments) | 0.00 |
| | | Organic matter content low | 0.50 | | | Wetness depth | 0.04 |
| | | Droughty | 0.87 | | | Too sandy | 0.38 |
| W: | | | | | | | |
| Water | 100 | Not rated | | Not rated | | Not rated | |

Table 20.--Engineering properties

(Absence of an entry indicates that the data were not estimated.)

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| AmC: | | | | | | | | | | | | |
| Amalia---------- | 0-5 | Very gravelly coarse sandy loam | GC-GM, GC, GW-GC | A-1-b, A-2-6, A-1-a | 0 | 0-17 | 38-56 | 30-50 | 19-38 | 12-26 | 18-33 | 3-12 |
| | 5-11 | Very gravelly sandy loam, very gravelly clay loam | GC, GC-GM | A-7-6, A-2-6, A-1-a | 0 | 9-18 | 37-57 | 28-52 | 20-50 | 13-37 | 21-45 | 6-23 |
| | 11-25 | Very gravelly sandy loam, very gravelly loam | GC | A-1-a, A-2-6, A-7-6 | 0 | 18-26 | 39-61 | 31-56 | 24-56 | 14-41 | 19-42 | 3-20 |
| | 25-39 | Very gravelly loamy sand, very gravelly sandy loam | GM, GC | A-1-b, A-1-a | 0 | 0-39 | 30-55 | 21-49 | 15-40 | 7-22 | 0-24 | NP-6 |
| | 39-80 | Very gravelly sandy loam, extremely gravelly loamy sand | GW-GM, GC-GM, GP-GC | A-1-a, A-2-4 | 0 | 0-37 | 31-56 | 22-51 | 16-44 | 5-16 | 16-25 | 1-7 |
| AmE: | | | | | | | | | | | | |
| Amalia---------- | 0-5 | Very gravelly coarse sandy loam | GC, GW-GM | A-2-6, A-1-a | 0 | 0-17 | 38-56 | 30-50 | 16-33 | 9-22 | 18-33 | 3-12 |
| | 5-11 | Very gravelly clay loam, very gravelly sandy loam | GC-GM, GC | A-7-6, A-2-6, A-1-a | 0 | 9-18 | 37-57 | 28-52 | 20-50 | 13-37 | 21-45 | 6-23 |
| | 11-25 | Very gravelly loam, very gravelly sandy loam | GM, GC | A-7-6, A-1-a, A-2-6 | 0 | 18-26 | 39-61 | 31-56 | 24-56 | 14-41 | 19-42 | 3-20 |
| | 25-39 | Very gravelly sandy loam, very gravelly loamy sand | GP-GM, GM, GC-GM | A-1-b, A-1-a | 0 | 0-39 | 30-55 | 21-49 | 15-40 | 7-22 | 0-24 | NP-6 |
| | 39-80 | Extremely gravelly loamy sand, very gravelly sandy loam | GC-GM, GP-GC, GW-GM | A-1-a, A-2-4 | 0 | 0-37 | 31-56 | 22-51 | 16-44 | 5-16 | 16-25 | 1-7 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| Aq: | | | | | | | | | | | | |
| Cumulic Cryaquolls----- | 0-6 | Silt loam | OH, ML | A-4, A-7-5 | 0 | 0 | 100 | 100 | 90-100 | 76-93 | 32-58 | 6-18 |
| | 6-20 | Loam | ML, CL-ML, CL | A-7-6, A-4, A-6 | 0 | 0 | 100 | 100 | 90-100 | 70-87 | 25-47 | 6-18 |
| | 20-27 | Loam | CL, CL-ML | A-7-6, A-4, A-6 | 0 | 0 | 77-100 | 74-100 | 67-100 | 52-87 | 24-43 | 6-18 |
| | 27-33 | Gravelly loam | CL, GC, GC-GM | A-2-4, A-6 | 0 | 0 | 55-77 | 49-74 | 45-74 | 35-66 | 23-40 | 6-18 |
| | 33-80 | Extremely gravelly sandy loam, extremely gravelly loam, gravel | GW | A-2-6, A-1-a, A-2-4 | 0 | 0 | 16 | 5 | 4-5 | 2-3 | 21-32 | 6-13 |
| BfA: | | | | | | | | | | | | |
| Blanfort-------- | 0-2 | Fine sandy loam | SC, SC-SM, SM | A-4, A-2-4 | 0 | 0 | 91-100 | 90-100 | 77-96 | 33-47 | 17-30 | 2-9 |
| | 2-7 | Sandy loam, fine sandy loam | CL, SC, SC-SM | A-6, A-4 | 0 | 0 | 91-100 | 90-100 | 79-98 | 38-52 | 20-30 | 4-11 |
| | 7-16 | Sandy loam, fine sandy loam | CL, SC, SC-SM | A-4 | 0 | 0 | 91-100 | 90-100 | 79-98 | 38-52 | 20-29 | 4-9 |
| | 16-28 | Sandy loam, fine sandy loam | SC-SM, SM, CL | A-4, A-2-4 | 0 | 0 | 91-100 | 90-100 | 78-99 | 35-52 | 17-29 | 2-9 |
| | 28-56 | Sandy loam, fine sandy loam | CL, SC-SM, SM | A-2-4, A-4 | 0 | 0 | 92-100 | 91-100 | 78-99 | 35-52 | 16-28 | 1-9 |
| | 56-80 | Sandy loam, fine sandy loam | CL, SC, SM | A-2-4, A-4 | 0 | 0-8 | 83-100 | 81-100 | 68-97 | 30-51 | 16-28 | 2-9 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| BfD: | | | | | | | | | | | | |
| Blanfort | 0-2 | Fine sandy loam | SC, SC-SM, SM | A-4, A-2-4 | 0 | 0 | 91-100 | 90-100 | 77-96 | 33-47 | 17-30 | 2-9 |
| | 2-7 | Sandy loam, fine sandy loam | CL, SC, SC-SM | A-6, A-4 | 0 | 0 | 91-100 | 90-100 | 79-98 | 38-52 | 20-30 | 4-11 |
| | 7-16 | Sandy loam, fine sandy loam | CL, SC, SC-SM | A-4 | 0 | 0 | 91-100 | 90-100 | 79-98 | 38-52 | 20-29 | 4-9 |
| | 16-28 | Sandy loam, fine sandy loam | SC-SM, SM, CL | A-4, A-2-4 | 0 | 0 | 91-100 | 90-100 | 78-99 | 35-52 | 17-29 | 2-9 |
| | 28-56 | Sandy loam, fine sandy loam | CL, SC-SM, SM | A-2-4, A-4 | 0 | 0 | 92-100 | 91-100 | 78-99 | 35-52 | 16-28 | 1-9 |
| | 56-80 | Sandy loam, fine sandy loam | CL, SC, SM | A-2-4, A-4 | 0 | 0-8 | 83-100 | 81-100 | 68-97 | 30-51 | 16-28 | 2-9 |
| CsA: | | | | | | | | | | | | |
| Cososa | 0-6 | Loamy sand | SC-SM, SM | A-2-4 | 0 | 0 | 77-100 | 76-100 | 55-82 | 13-27 | 0-22 | NP-5 |
| | 6-14 | Gravelly fine sandy loam | SC, GC-GM | A-2-6, A-1-b, A-2-4 | 0 | 0 | 54-77 | 52-76 | 45-75 | 14-29 | 20-30 | 6-12 |
| | 14-21 | Gravelly loamy sand | SP-SM, SC-SM, SC | A-2-4, A-1-b | 0 | 0 | 57-80 | 55-79 | 41-67 | 10-22 | 16-26 | 2-8 |
| | 21-49 | Gravelly sandy clay loam | GC, SC | A-2-4, A-2-6, A-7-6 | 0 | 0 | 52-76 | 50-75 | 41-73 | 18-38 | 27-42 | 10-19 |
| | 49-57 | Gravelly loamy sand | SC-SM, GP-GM, SM | A-2-4, A-1-b | 0 | 0 | 52-77 | 50-76 | 36-62 | 6-17 | 0-21 | NP-4 |
| | 57-74 | Very gravelly coarse sand | GP, GP-GM, GW | A-1-a | 0 | 0 | 27-49 | 24-47 | 10-22 | 1-5 | 0-17 | NP-1 |
| | 74-80 | Sandy loam | SC, SC-SM | A-2-4, A-4 | 0 | 0 | 75-100 | 74-100 | 56-87 | 29-49 | 20-29 | 5-10 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| CsD: | | | | | | | | | | | | |
| Cososa | 0-6 | Loamy sand | SC-SM, SM | A-2-4 | 0 | 0 | 77-100 | 76-100 | 55-82 | 13-27 | 0-22 | NP-5 |
| | 6-14 | Gravelly fine sandy loam | SC, GC-GM | A-2-6, A-1-b, A-2-4 | 0 | 0 | 54-77 | 52-76 | 45-75 | 14-29 | 20-30 | 6-12 |
| | 14-21 | Gravelly loamy sand | SP-SM, SC-SM, SC | A-2-4, A-1-b | 0 | 0 | 57-80 | 55-79 | 41-67 | 10-22 | 16-26 | 2-8 |
| | 21-49 | Gravelly sandy clay loam | GC, SC | A-2-4, A-2-6, A-7-6 | 0 | 0 | 52-76 | 50-75 | 41-73 | 18-38 | 27-42 | 10-19 |
| | 49-57 | Gravelly loamy sand | GP-GM, SC-SM, SM | A-2-4, A-1-b | 0 | 0 | 52-77 | 50-76 | 36-62 | 6-17 | 0-21 | NP-4 |
| | 57-74 | Very gravelly coarse sand | GP, GP-GM, GW | A-1-a | 0 | 0 | 27-49 | 24-47 | 10-22 | 1-5 | 0-17 | NP-1 |
| | 74-80 | Sandy loam | SC, SC-SM | A-2-4, A-4 | 0 | 0 | 75-100 | 74-100 | 56-87 | 29-49 | 20-29 | 5-10 |
| CtA: | | | | | | | | | | | | |
| Costilla | 0-2 | Loamy sand | SC-SM, SM | A-2-4 | 0 | 0 | 79-100 | 76-100 | 58-85 | 20-35 | 0-22 | NP-5 |
| | 2-7 | Loamy sand | SM, SC-SM | A-2-4, A-4 | 0 | 0 | 79-100 | 76-100 | 58-86 | 21-37 | 0-23 | NP-6 |
| | 7-14 | Gravelly loamy sand | SC-SM, SP-SM | A-2-4, A-1-b | 0 | 0 | 57-79 | 51-76 | 39-65 | 11-23 | 15-23 | 1-6 |
| | 14-32 | Gravelly loamy sand | SP-SM, GP-GM, SC-SM | A-1-b, A-2-4 | 0 | 0 | 57-79 | 51-76 | 39-64 | 10-21 | 0-22 | 1-6 |
| | 32-37 | Gravelly loamy sand | SP-SM, SM | A-1-b, A-2-4 | 0 | 0 | 57-79 | 51-76 | 37-62 | 7-18 | 0-20 | NP-3 |
| | 37-80 | Gravelly loamy sand, gravelly sand | SC-SM, SP-SM | A-3, A-2-4, A-1-b | 0 | 0 | 57-79 | 51-76 | 39-65 | 5-15 | 0-21 | NP-5 |
| CuF: | | | | | | | | | | | | |
| Comodore | 0-5 | Very cobbly loam | GC-GM, GC | A-2-4, A-6, A-2-6 | 0 | 26-57 | 36-66 | 28-61 | 23-60 | 16-45 | 24-40 | 7-18 |
| | 5-16 | Extremely cobbly loam, very cobbly loam | GC, GP-GC | A-2-6, A-6 | 0 | 26-57 | 26-66 | 16-61 | 14-58 | 10-43 | 31-39 | 13-18 |
| | 16-80 | Bedrock | | | --- | --- | --- | --- | --- | --- | 0-14 | NP |
| Rock outcrop | 0-60 | Unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| CuE: | | | | | | | | | | | | |
| Uracca---------- | 0-4 | Very cobbly sandy loam | GC, SC | A-2-4, A-2-6 | 0 | 0-38 | 45-73 | 38-70 | 29-58 | 16-33 | 26-34 | 9-13 |
| | 4-11 | Very cobbly sandy clay loam | GC, GW-GC | A-2-7, A-2-6 | 0-9 | 18-51 | 39-61 | 31-56 | 23-52 | 10-28 | 30-46 | 12-24 |
| | 11-18 | Very cobbly sandy clay loam | GC, GW-GC | A-2-7, A-2-4, A-2-6 | 0-9 | 18-51 | 39-61 | 31-56 | 24-54 | 10-29 | 28-43 | 10-22 |
| | 18-24 | Extremely cobbly sandy loam | GP, GC-GM | A-2-4, A-1-a | 0-8 | 24-43 | 24-58 | 14-53 | 9-39 | 3-18 | 0-27 | NP-7 |
| | 24-52 | Extremely cobbly sandy loam | GC-GM, GP, GW-GC | A-1-a, A-2-4 | 0-8 | 24-43 | 24-58 | 14-53 | 9-41 | 3-19 | 0-27 | NP-7 |
| | 52-80 | Extremely cobbly sandy loam | GP-GC, GW, GC | A-1-a, A-2-4 | 0-8 | 24-43 | 24-58 | 14-53 | 9-40 | 3-16 | 0-25 | NP-7 |
| DAM: | | | | | | | | | | | | |
| Dam---------- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DrD: | | | | | | | | | | | | |
| Durreo---------- | 0-6 | Gravelly fine sandy loam | SM, SC-SM, SC | A-4, A-1-b, A-2-4 | 0 | 0-17 | 63-78 | 58-75 | 50-74 | 22-38 | 18-31 | 1-10 |
| | 6-14 | Very gravelly sandy loam, very cobbly fine sandy loam | GP-GM, GC-GM | A-1-b, A-2-4, A-1-a | 0 | 18-40 | 43-61 | 36-56 | 21-39 | 9-22 | 16-28 | 1-7 |
| | 14-34 | Very cobbly fine sandy loam, extremely cobbly sandy loam | GC-GM, GP, SM | A-1-b, A-1-a | 0 | 17-50 | 24-63 | 14-58 | 9-44 | 4-23 | 0-26 | NP-5 |
| | 34-80 | Very cobbly sandy loam, extremely cobbly sandy loam | GC-GM, GP, SM | A-1-a, A-1-b, A-2-4 | 0 | 25-50 | 24-67 | 14-63 | 9-49 | 4-26 | 0-26 | NP-5 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| EaA: | | | | | | | | | | | | |
| Eastdale-------- | 0-5 | Loam | SC, CL | A-6, A-7-6 | 0 | 0 | 78-100 | 75-100 | 60-97 | 41-72 | 30-46 | 12-24 |
| | 5-15 | Silty clay loam, clay loam | CL | A-6, A-7-6 | 0 | 0 | 78-100 | 75-100 | 64-93 | 50-74 | 37-44 | 18-22 |
| | 15-30 | Clay loam, silty clay loam, loam | SC, CL | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 60-95 | 46-76 | 31-42 | 13-19 |
| | 30-42 | Clay loam, loam | SC, CL | A-4, A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 60-100 | 43-78 | 26-44 | 9-22 |
| | 42-59 | Sandy clay loam, sandy loam, loam | CL, SC-SM | A-4, A-6 | 0 | 0 | 77-100 | 74-100 | 55-90 | 36-64 | 21-35 | 5-15 |
| | 59-80 | Sandy loam | CL, SC-SM | A-2-4, A-4, A-6 | 0 | 0 | 77-100 | 74-100 | 56-90 | 29-55 | 19-34 | 5-15 |
| FLB: | | | | | | | | | | | | |
| Fluvents-------- | 0-6 | Very gravelly sand | SP-SM, GP | A-1-a | 0 | 0-15 | 25-55 | 25-50 | 10-30 | 0-5 | 0-14 | NP |
| | 6-60 | Stratified extremely gravelly coarse sand to gravelly sand | SP-SM, GP, SP | A-1-b, A-1-a | 0 | 0-19 | 44-76 | 18-76 | 8-35 | 2-8 | 0-14 | NP |
| FtA: | | | | | | | | | | | | |
| Fuertes--------- | 0-3 | Sandy loam | SC-SM, ML | A-4, A-7-5 | 0 | 0 | 77-100 | 74-100 | 57-94 | 36-66 | 24-49 | 6-18 |
| | 3-7 | Loam, clay loam | SC, CL | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 61-100 | 45-77 | 30-47 | 12-25 |
| | 7-22 | Clay loam, loam | SC, CL | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 58-100 | 42-77 | 25-47 | 9-25 |
| | 22-40 | Loam, clay loam | SC, CL | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 61-99 | 45-77 | 28-47 | 12-25 |
| | 40-54 | Loam, gravelly clay loam, clay loam | GC, CL | A-2-6, A-7-6, A-6 | 0 | 0 | 54-100 | 48-100 | 42-100 | 30-80 | 27-44 | 12-25 |
| | 54-80 | Very gravelly sand, very gravelly loamy sand | GP-GM, GP | A-1-b, A-1-a | 0 | 0-24 | 40-56 | 32-50 | 25-42 | 4-10 | 0-19 | NP-3 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| GmE: | | | | | | | | | | | | |
| Aquic Dystrocryepts-- | 0-11 | Cobbly loam | SM, OH, SC-SM | A-4, A-1-b | 0-29 | 17-29 | 69-90 | 43-90 | 36-83 | 25-61 | 25-52 | 6-13 |
| | 11-20 | Gravelly loam, gravelly sandy loam, very gravelly loam | GC-GM, GC, CL | A-4, A-1-b, A-6 | 0-9 | 5-17 | 53-82 | 37-79 | 31-73 | 21-53 | 22-37 | 6-13 |
| | 20-34 | Gravelly loam, gravelly sandy loam, very gravelly loam | GC, GW-GC, CL | A-1-a, A-6, A-4 | 0-6 | 0-9 | 51-84 | 14-84 | 11-78 | 8-57 | 20-35 | 6-13 |
| | 34-60 | Very gravelly loam, very gravelly sandy loam, extremely gravelly loam | GM, GC | A-2-4, A-1-b, A-6 | 0-7 | 13-17 | 50-69 | 31-69 | 25-66 | 17-48 | 16-32 | 2-13 |
| Gn: | | | | | | | | | | | | |
| Angostura------- | 0-1 | Slightly decomposed plant material | PT | A-8 | 0 | 0 | 100 | 100 | --- | --- | --- | --- |
| | 1-12 | Very stony loam | GC-GM, SC, SC-SM | A-2-4, A-6 | 18-33 | 18-33 | 63-79 | 50-69 | 40-62 | 27-44 | 21-33 | 6-13 |
| | 12-24 | Very cobbly loam | SC, GC | A-2-4, A-6 | 2-12 | 21-31 | 56-74 | 45-64 | 38-62 | 28-46 | 24-36 | 9-17 |
| | 24-46 | Very cobbly clay loam, very cobbly sandy clay loam | GC | A-6, A-2-6 | 0-6 | 29-32 | 60-79 | 40-69 | 32-62 | 24-48 | 29-40 | 13-21 |
| | 46-61 | Very cobbly clay loam, very cobbly sandy clay loam | GC | A-6, A-2-6 | 7-12 | 22-25 | 60-79 | 40-69 | 33-64 | 25-49 | 29-40 | 13-21 |
| | 61-72 | Very gravelly loam, very gravelly sandy clay loam | GC | A-6, A-2-6 | 9-18 | 13-18 | 58-73 | 33-59 | 29-56 | 21-43 | 29-40 | 13-21 |
| GP: | | | | | | | | | | | | |
| Pits, gravel---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| GpA: | | | | | | | | | | | | |
| Graypoint------- | 0-5 | Sandy loam | SC | A-2-4, A-6, A-2-6 | 0 | 0 | 78-100 | 75-100 | 54-79 | 26-41 | 25-32 | 9-12 |
| | 5-12 | Loam, clay loam, sandy clay loam | SC, CL | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 62-94 | 43-69 | 32-43 | 15-22 |
| | 12-16 | Very gravelly loam, very gravelly sandy clay loam, very gravelly sandy loam | GC | A-2-6, A-2-4 | 0 | 0 | 33-54 | 25-48 | 19-43 | 13-30 | 25-36 | 9-16 |
| | 16-21 | Extremely gravelly loamy sand, extremely gravelly sand | GP-GM, GW-GC, GW | A-1-a | 0 | 0 | 17-36 | 6-27 | 4-23 | 1-9 | 0-22 | NP-6 |
| | 21-36 | Extremely gravelly sand, extremely gravelly loamy sand | GP, GW | A-1-a | 0 | 0 | 17-36 | 6-27 | 4-22 | 0-4 | 0-17 | NP-1 |
| | 36-80 | Extremely gravelly sand | GP, GW | A-1-a | 0 | 0 | 17-36 | 6-27 | 4-22 | 0-3 | 0-18 | NP-2 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| GrA: | | | | | | | | | | | | |
| Grayco---------- | 0-4 | Sandy loam | SC, SC-SM | A-2-4, A-6, A-2-6 | 0 | 0 | 78-100 | 75-100 | 58-87 | 29-49 | 25-36 | 7-14 |
| | 4-14 | Loam, gravelly sandy clay loam | CL, GC-GM, SC | A-6, A-2-4, A-4 | 0-7 | 0 | 58-100 | 53-100 | 43-97 | 28-69 | 24-39 | 7-17 |
| | 14-18 | Very gravelly sandy clay loam, gravelly loam, very gravelly sandy loam | GC, GC-GM, GM | A-1-b, A-6, A-1-a | 0 | 0-12 | 37-77 | 29-74 | 22-69 | 13-47 | 20-37 | 3-16 |
| | 18-24 | Extremely gravelly loamy sand, extremely gravelly sand | GM, GW, GW-GM | A-1-a, A-1-b | 0 | 0-20 | 18-57 | 8-51 | 6-41 | 2-14 | 0-19 | NP-3 |
| | 24-43 | Extremely gravelly loamy sand, extremely gravelly sand | SP, SP-SM | A-1-a, A-1-b | 0 | 0-20 | 54-76 | 8-51 | 6-41 | 1-7 | 0-17 | NP-1 |
| | 43-80 | Extremely gravelly sand, extremely gravelly loamy sand | GW, SP-SM | A-1-a, A-1-b | 0 | 0-20 | 25-61 | 8-51 | 6-41 | 1-7 | 0-17 | NP-2 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| GrC: | | | | | | | | | | | | |
| Grayco | 0-4 | Sandy loam | SC, SC-SM | A-2-4, A-6 | 0 | 0 | 78-100 | 75-100 | 58-87 | 29-49 | 25-36 | 7-14 |
| | 4-14 | Loam, gravelly sandy clay loam | CL, GC-GM, SC | A-4, A-2-4, A-6 | 0-7 | 0 | 58-100 | 53-100 | 43-97 | 28-69 | 24-39 | 7-17 |
| | 14-18 | Very gravelly sandy clay loam, gravelly loam, very gravelly sandy loam | GC, GM, GC-GM | A-1-b, A-6, A-1-a | 0 | 0-12 | 37-77 | 29-74 | 22-69 | 13-47 | 21-37 | 3-16 |
| | 18-24 | Extremely gravelly loamy sand, extremely gravelly sand | GM, GW, GW-GM | A-1-a, A-1-b | 0 | 0-20 | 18-57 | 8-51 | 6-41 | 2-14 | 0-19 | NP-3 |
| | 24-43 | Extremely gravelly sand, extremely gravelly loamy sand | SP, SP-SM | A-1-a, A-1-b | 0 | 0-20 | 54-76 | 8-51 | 6-41 | 1-7 | 0-17 | NP-1 |
| | 43-80 | Extremely gravelly sand, extremely gravelly loamy sand | GW, SP-SM | A-1-a, A-1-b | 0 | 0-20 | 25-61 | 8-51 | 6-41 | 1-7 | 0-17 | NP-2 |
| Ho: | | | | | | | | | | | | |
| Hooper, loamy sand | 0-5 | Loamy sand | SC-SM, SM | A-2-4 | 0 | 0 | 79-100 | 76-100 | 57-87 | 13-29 | 0-27 | NP-7 |
| | 5-10 | Sandy clay loam, clay loam, clay | CL, SC, CH | A-7-6, A-2-6 | 0 | 0 | 76-100 | 73-100 | 51-100 | 33-75 | 30-56 | 13-31 |
| | 10-18 | Sandy clay loam, clay loam, clay | CL, SC, CH | A-2-6, A-7-6 | 0 | 0 | 76-100 | 73-100 | 51-100 | 33-75 | 29-54 | 12-29 |
| | 18-23 | Sandy clay loam | CL, SC-SM | A-6, A-1-b, A-7-6 | 0 | 0 | 77-100 | 75-100 | 49-91 | 24-57 | 21-42 | 5-19 |
| | 23-37 | Sandy loam, loamy sand | SC, SM | A-2-4, A-6 | 0 | 0 | 78-100 | 75-100 | 58-95 | 19-43 | 0-30 | NP-13 |
| | 37-50 | Loamy sand, sandy loam | SC-SM, SC, SP-SM | A-2-4, A-2-6 | 0 | 0 | 78-100 | 75-100 | 55-91 | 11-32 | 0-30 | NP-12 |
| | 50-80 | Sand, loamy sand | SC-SM, SP, SP-SM | A-3, A-2-4 | 0 | 0 | 79-100 | 76-100 | 57-85 | 4-16 | 0-21 | NP-5 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| Ho: | | | | | | | | | | | | |
| Hooper, clay loam | 0-4 | Clay loam | CL, SC | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 63-99 | 48-79 | 36-47 | 16-21 |
| | 4-12 | Clay, clay loam | CH, CL, SC | A-7-6, A-6 | 0 | 0 | 76-100 | 73-100 | 60-100 | 46-81 | 39-55 | 20-29 |
| | 12-26 | Clay loam, clay | CH, CL, SC | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 63-100 | 46-78 | 38-51 | 19-25 |
| | 26-33 | Clay loam | MH, CL | A-6 | 0 | 0 | 77-100 | 74-100 | 65-99 | 50-77 | 38-51 | 15-21 |
| | 33-37 | Sandy clay loam, sandy loam | SC-SM, CL, SC | A-2-4, A-6 | 0 | 0 | 77-100 | 75-100 | 57-94 | 24-51 | 21-40 | 6-16 |
| | 37-50 | Sand, loamy sand | SP-SM, SC-SM | A-2-4, A-3 | 0 | 0 | 79-100 | 76-100 | 58-86 | 8-20 | 0-22 | NP-5 |
| | 50-72 | Sand, loamy sand | SP-SM, SP, SC-SM | A-3, A-2-4 | 0 | 0 | 79-100 | 76-100 | 57-85 | 4-16 | 0-22 | NP-5 |
| Hp: | | | | | | | | | | | | |
| Hooper, clay loam | 0-4 | Clay loam | CL, SC | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 63-99 | 48-79 | 36-47 | 16-21 |
| | 4-12 | Clay, clay loam | CH, CL, SC | A-7-6, A-6 | 0 | 0 | 76-100 | 73-100 | 60-100 | 46-81 | 39-55 | 20-29 |
| | 12-26 | Clay loam, clay | CH, CL, SC | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 63-100 | 46-78 | 38-51 | 19-25 |
| | 26-33 | Clay loam | MH, CL | A-6 | 0 | 0 | 77-100 | 74-100 | 65-99 | 50-77 | 38-51 | 15-21 |
| | 33-37 | Sandy clay loam | SC-SM, CL, SC | A-2-4, A-6 | 0 | 0 | 77-100 | 75-100 | 57-94 | 24-51 | 21-40 | 6-16 |
| | 37-50 | Sand, loamy sand | SP-SM, SC-SM | A-2-4, A-3 | 0 | 0 | 79-100 | 76-100 | 58-86 | 8-20 | 0-22 | NP-5 |
| | 50-72 | Sand, loamy sand | SP-SM, SP, SC-SM | A-3, A-2-4 | 0 | 0 | 79-100 | 76-100 | 57-85 | 4-16 | 0-22 | NP-5 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| Hp: | | | | | | | | | | | | |
| Hooper, loamy sand | 0-5 | Loamy sand | SC-SM, SM | A-2-4 | 0 | 0 | 79-100 | 76-100 | 57-87 | 13-29 | 0-27 | NP-7 |
| | 5-10 | Clay loam, clay, sandy clay loam | CL, SC, CH | A-7-6, A-2-6 | 0 | 0 | 76-100 | 73-100 | 51-100 | 33-75 | 30-56 | 13-31 |
| | 10-18 | Sandy clay loam, clay loam, clay | CL, SC, CH | A-2-6, A-7-6 | 0 | 0 | 76-100 | 73-100 | 51-100 | 33-75 | 29-54 | 12-29 |
| | 18-23 | Sandy loam, sandy clay loam | CL, SC-SM | A-6, A-1-b, A-7-6 | 0 | 0 | 77-100 | 75-100 | 49-91 | 24-57 | 21-42 | 5-19 |
| | 23-37 | Loamy sand, sandy loam | SC, SM | A-2-4, A-6 | 0 | 0 | 78-100 | 75-100 | 58-95 | 19-43 | 0-30 | NP-13 |
| | 37-50 | Loamy sand, sandy loam | SC-SM, SC, SP-SM | A-2-4, A-2-6 | 0 | 0 | 78-100 | 75-100 | 55-91 | 11-32 | 0-30 | NP-12 |
| | 50-80 | Loamy sand, sand | SC-SM, SP, SP-SM | A-3, A-2-4 | 0 | 0 | 79-100 | 76-100 | 57-85 | 4-16 | 0-21 | NP-5 |
| KbA: | | | | | | | | | | | | |
| Kibin | 0-1 | Fine sandy loam | CL, SC | A-4, A-6 | 0 | 0 | 76-100 | 75-100 | 65-91 | 38-55 | 27-36 | 9-12 |
| | 1-3 | Sandy clay loam | CL, SC | A-6, A-7-6 | 0 | 0 | 76-100 | 75-100 | 65-93 | 41-61 | 32-43 | 13-18 |
| | 3-9 | Sandy clay loam | SC, CL | A-7-6, A-6 | 0 | 0 | 76-100 | 75-100 | 65-93 | 39-59 | 32-43 | 13-18 |
| | 9-14 | Sandy clay loam | SC, CL | A-6, A-7-6 | 0 | 0 | 77-92 | 76-92 | 66-92 | 40-61 | 32-50 | 13-24 |
| | 14-19 | Loam | ML, CL | A-6, A-7-6 | 0 | 0 | 90-100 | 90-100 | 75-90 | 53-65 | 32-45 | 13-17 |
| | 19-27 | Loam | SC, CL | A-6, A-4 | 0 | 0 | 82-100 | 82-100 | 66-92 | 46-67 | 25-36 | 10-16 |
| | 27-37 | Clay loam | CL | A-7-6, A-6 | 0 | 0 | 83-100 | 82-100 | 69-96 | 58-83 | 38-49 | 19-26 |
| | 37-52 | Extremely gravelly loamy coarse sand | GW, GP-GC, GP | A-1-a, A-2-4 | 0 | 0 | 10-53 | 6-51 | 3-27 | 1-11 | 16-24 | 2-8 |
| | 52-80 | Extremely gravelly coarse sand | GP-GC, GW | A-1-a, A-1-b | 0 | 0 | 10-53 | 6-51 | 3-27 | 0-7 | 0-20 | NP-4 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| KbC: | | | | | | | | | | | | |
| Kibin | 0-1 | Fine sandy loam | CL, SC | A-4, A-6 | 0 | 0 | 76-100 | 75-100 | 65-91 | 38-55 | 27-36 | 9-12 |
| | 1-3 | Sandy clay loam | CL, SC | A-6, A-7-6 | 0 | 0 | 76-100 | 75-100 | 65-93 | 41-61 | 32-43 | 13-18 |
| | 3-9 | Sandy clay loam | SC, CL | A-7-6, A-6 | 0 | 0 | 76-100 | 75-100 | 65-93 | 39-59 | 32-43 | 13-18 |
| | 9-14 | Sandy clay loam | SC, CL | A-6, A-7-6 | 0 | 0 | 77-92 | 76-92 | 66-92 | 40-61 | 32-50 | 13-24 |
| | 14-19 | Loam | ML, CL | A-6, A-7-6 | 0 | 0 | 90-100 | 90-100 | 75-90 | 53-65 | 32-45 | 13-17 |
| | 19-27 | Loam | SC, CL | A-6, A-4 | 0 | 0 | 82-100 | 82-100 | 66-92 | 46-67 | 25-36 | 10-16 |
| | 27-37 | Clay loam | CL | A-7-6, A-6 | 0 | 0 | 83-100 | 82-100 | 69-97 | 58-83 | 38-49 | 19-26 |
| | 37-52 | Extremely gravelly loamy coarse sand | GW, GP-GC, GP | A-1-a, A-2-4 | 0 | 0 | 10-53 | 6-51 | 3-27 | 1-11 | 16-24 | 2-8 |
| | 52-80 | Extremely gravelly coarse sand | GP-GC, GW | A-1-a, A-1-b | 0 | 0 | 10-53 | 6-51 | 3-27 | 0-7 | 0-20 | NP-4 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| LbF: | | | | | | | | | | | | |
| Lambe---------- | 0-3 | Gravelly sandy loam | GC, GM, SC-SM | A-6, A-1-b, A-2-4 | 0-4 | 0-16 | 59-75 | 54-72 | 40-62 | 25-41 | 21-35 | 3-11 |
| | 3-8 | Very gravelly sandy clay loam, gravelly loam, very gravelly sandy loam | GC-GM, GC | A-1-a, A-6, A-2-6 | 0-10 | 0-27 | 40-76 | 32-73 | 24-67 | 13-43 | 24-40 | 6-18 |
| | 8-12 | Very gravelly sandy clay loam, gravelly loam, very gravelly sandy loam | GC-GM, GC | A-1-a, A-6, A-2-6 | 0-9 | 0-26 | 41-77 | 33-74 | 24-65 | 12-40 | 23-39 | 6-18 |
| | 12-22 | Very gravelly sandy clay loam, very gravelly loam, extremely gravelly sandy loam | GC, GW | A-1-a, A-2-6 | 0-9 | 9-33 | 21-57 | 11-52 | 8-46 | 4-28 | 22-38 | 6-18 |
| | 22-38 | Extremely gravelly sandy clay loam, very gravelly loam, extremely gravelly coarse sandy loam | GW, GC | A-1-a, A-2-6 | 0-9 | 9-33 | 21-57 | 11-52 | 8-47 | 4-28 | 21-37 | 6-18 |
| | 38-65 | Extremely gravelly sandy clay loam, very gravelly loam, extremely gravelly sandy loam | GC, GW | A-1-a, A-2-6, A-2-4 | 0-9 | 9-32 | 22-58 | 11-52 | 8-48 | 4-28 | 21-36 | 5-17 |
| | 65-80 | Extremely gravelly sandy loam, extremely gravelly coarse sandy loam, extremely gravelly loamy coarse sand | GW, GW-GC | A-1-a, A-2-4 | 0-9 | 18-33 | 21-36 | 11-28 | 8-23 | 3-12 | 16-27 | 1-9 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| LbF: | | | | | | | | | | | | |
| Woodhall-------- | 0-4 | Channery silt loam | ML, GC-GM, GM | A-4, A-2-4, A-6 | 0 | 6-12 | 52-76 | 47-74 | 41-73 | 29-56 | 20-36 | 2-11 |
| | 4-11 | Very channery loam, very gravelly sandy clay loam | GP-GC, GC | A-2-6, A-6 | 0 | 21-34 | 25-59 | 17-55 | 15-53 | 11-42 | 30-40 | 12-18 |
| | 11-23 | Very channery loam, extremely gravelly sandy clay loam | GP-GC, GC | A-2-6, A-6 | 0 | 20-33 | 25-60 | 17-56 | 15-54 | 11-41 | 28-38 | 12-18 |
| | 23-32 | Extremely channery fine sandy loam, extremely gravelly sandy loam, very gravelly sandy loam, very cobbly fine sandy loam | GC-GM, GP-GM, GC | A-1-a, A-6, A-1-b | 0 | 26-44 | 27-64 | 21-61 | 17-59 | 10-37 | 17-28 | 2-11 |
| | >32 | Bedrock | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| LeF: | | | | | | | | | | | | |
| Fallriver------- | 0-1 | Moderately decomposed plant material | PT | A-8 | 0 | 0 | 100 | 100 | --- | --- | --- | --- |
| | 1-8 | Very gravelly sandy loam, very cobbly sandy loam | GW-GC, GC, GC-GM | A-1-b, A-1-a, A-2-4 | 0 | 19-35 | 39-59 | 31-54 | 23-45 | 12-25 | 16-27 | 2-8 |
| | 8-18 | Very gravelly sandy loam, very cobbly sandy loam | GC, GC-GM | A-2-6, A-1-a, A-2-4 | 0 | 19-34 | 40-60 | 32-55 | 23-45 | 13-29 | 20-32 | 4-11 |
| | 18-37 | Very cobbly sandy loam, very gravelly sandy loam | GC-GM, GC | A-1-a, A-1-b, A-2-6 | 0 | 19-34 | 40-60 | 32-55 | 24-46 | 14-30 | 19-29 | 4-11 |
| | 37-56 | Very gravelly sandy loam, very cobbly sandy loam | GC, GC-GM | A-2-6, A-1-a, A-1-b | 0 | 18-33 | 41-61 | 33-56 | 25-48 | 15-31 | 18-29 | 4-11 |
| | 56-80 | Extremely gravelly loamy sand, very gravelly loamy sand | GC-GM, GW-GM | A-1-a, A-2-4 | 0 | 15-29 | 35-65 | 26-61 | 20-53 | 8-25 | 0-23 | NP-7 |
| Rock outcrop---- | 0-60 | Unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| LH: | | | | | | | | | | | | |
| Leadville------- | 0-2 | Slightly decomposed plant material | PT | A-8 | 0 | 0 | 100 | 100 | --- | --- | --- | --- |
| | 2-16 | Cobbly sandy loam | SC | A-2-4 | 1-8 | 8-17 | 77-91 | 67-84 | 49-69 | 24-38 | 20-33 | 6-13 |
| | 16-22 | Very cobbly sandy loam | SC-SM, SC | A-1, A-2-6 | 0-6 | 21-24 | 56-73 | 38-64 | 26-50 | 12-26 | 20-32 | 6-13 |
| | 22-48 | Very cobbly sandy clay loam, very cobbly clay loam | GC, SC | A-2-6 | 0-6 | 36-51 | 71-81 | 57-77 | 43-69 | 23-43 | 29-44 | 13-25 |
| | 48-65 | Very cobbly sandy clay loam | GC, SC | A-2-6 | 1-6 | 37-43 | 63-85 | 50-81 | 39-71 | 21-41 | 29-40 | 13-21 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| LH: | | | | | | | | | | | | |
| Howlett--------- | 0-2 | Slightly decomposed plant material | PT | A-8 | 0 | 0 | 100 | 100 | --- | --- | --- | --- |
| | 2-14 | Cobbly sandy loam | SC, SC-SM | A-2-6 | 0-7 | 13-21 | 80-89 | 70-87 | 48-69 | 22-36 | 20-33 | 6-13 |
| | 14-23 | Gravelly sandy clay loam | GC, SC | A-6 | 0-5 | 6-14 | 72-81 | 61-80 | 52-80 | 30-52 | 29-44 | 13-25 |
| | 23-47 | Gravelly clay loam, gravelly sandy clay loam | SC, GC | A-2-6 | 0-5 | 0-8 | 70-84 | 57-84 | 45-78 | 24-49 | 29-44 | 13-25 |
| | 47-65 | Very cobbly sandy clay loam | GC, SC, SC-SM | A-2-4 | 0-8 | 36-42 | 69-83 | 48-79 | 41-78 | 23-50 | 25-30 | 5-10 |
| M: | | | | | | | | | | | | |
| Pits, mine------ | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| McA: | | | | | | | | | | | | |
| McGinty--------- | 0-4 | Fine sandy loam | SC, SM | A-4, A-2-4 | 0 | 0 | 78-100 | 76-100 | 63-96 | 26-47 | 17-30 | 1-10 |
| | 4-14 | Loam, sandy loam | SM, SC, CL | A-6, A-2-4 | 0 | 0 | 79-100 | 76-100 | 51-88 | 24-52 | 17-35 | 1-14 |
| | 14-33 | Loam, sandy loam | SM, SC-SM | A-4, A-2-4 | 0 | 0 | 79-100 | 76-100 | 52-82 | 24-45 | 0-27 | NP-6 |
| | 33-71 | Sandy loam, loam | SC, SM | A-4, A-2-4 | 0 | 0 | 76-100 | 73-100 | 49-79 | 27-50 | 0-28 | NP-10 |
| | 71-80 | Sandy loam, loam | SM, SC | A-4, A-2-4 | 0 | 0 | 80-100 | 77-100 | 51-78 | 28-49 | 0-28 | NP-10 |
| McB: | | | | | | | | | | | | |
| McGinty--------- | 0-4 | Fine sandy loam | SC, SM | A-4, A-2-4 | 0 | 0 | 78-100 | 76-100 | 63-96 | 26-47 | 17-30 | 1-10 |
| | 4-14 | Sandy loam, loam | SM, SC, CL | A-6, A-2-4 | 0 | 0 | 79-100 | 76-100 | 51-88 | 24-52 | 17-35 | 1-14 |
| | 14-33 | Sandy loam, loam | SM, SC-SM | A-4, A-2-4 | 0 | 0 | 79-100 | 76-100 | 52-82 | 24-45 | 0-27 | NP-6 |
| | 33-71 | Sandy loam, loam | SC, SM | A-4, A-2-4 | 0 | 0 | 76-100 | 73-100 | 49-79 | 27-50 | 0-28 | NP-10 |
| | 71-80 | Sandy loam, loam | SM, SC | A-4, A-2-4 | 0 | 0 | 80-100 | 77-100 | 51-78 | 28-49 | 0-28 | NP-10 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| McC: | | | | | | | | | | | | |
| McGinty--------- | 0-4 | Fine sandy loam | SC, SM | A-4, A-2-4 | 0 | 0 | 78-100 | 76-100 | 63-96 | 26-47 | 17-30 | 1-10 |
| | 4-14 | Sandy loam, loam | SM, SC, CL | A-2-4, A-6 | 0 | 0 | 79-100 | 76-100 | 51-88 | 24-52 | 17-35 | 1-14 |
| | 14-33 | Sandy loam, loam | SM, SC-SM | A-4, A-2-4 | 0 | 0 | 79-100 | 76-100 | 52-82 | 24-45 | 0-27 | NP-6 |
| | 33-71 | Sandy loam, loam | SC, SM | A-4, A-2-4 | 0 | 0 | 76-100 | 73-100 | 49-79 | 27-50 | 0-28 | NP-10 |
| | 71-80 | Sandy loam, loam | SM, SC | A-4, A-2-4 | 0 | 0 | 80-100 | 77-100 | 51-78 | 28-49 | 0-28 | NP-10 |
| MR: | | | | | | | | | | | | |
| Mirror---------- | 0-10 | Extremely cobbly loam | GC-GM, GM | A-2-7, A-1-b, A-2-4 | 26-33 | 39-51 | 54-63 | 39-50 | 32-46 | 22-33 | 27-44 | 6-12 |
| | 10-25 | Extremely cobbly loam, extremely cobbly sandy loam | GC, GC-GM | A-6, A-1-b, A-2-4 | 19-23 | 25-39 | 55-66 | 40-54 | 33-50 | 23-36 | 21-35 | 6-12 |
| | 25-60 | Bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock outcrop---- | 0-60 | Bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| MsA: | | | | | | | | | | | | |
| Mosca----------- | 0-6 | Loamy sand | SC-SM, SC | A-2-4 | 0 | 0 | 100 | 84-100 | 65-84 | 16-25 | 19-26 | 4-9 |
| | 6-12 | Sandy loam | SC, SC-SM | A-2-4, A-2-6 | 0 | 0 | 100 | 84-100 | 57-74 | 18-27 | 22-28 | 7-12 |
| | 12-20 | Sandy loam | SC, SC-SM | A-4, A-2-4, A-6 | 0 | 0 | 100 | 83-100 | 61-79 | 30-42 | 22-30 | 7-12 |
| | 20-38 | Sandy loam | SM, SC, SC-SM | A-2-4, A-6, A-4 | 0 | 0 | 87-97 | 85-96 | 65-80 | 34-45 | 22-30 | 3-12 |
| | 38-50 | Loamy sand | SC-SM, SM | A-2-4 | 0 | 0 | 93-100 | 83-100 | 62-84 | 18-31 | 0-23 | NP-6 |
| | 50-80 | Very gravelly sand | SP, SP-SM | A-1-b, A-1-a | 0 | 0 | 65-77 | 28-52 | 21-42 | 2-7 | 0-18 | NP-3 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| MtA: | | | | | | | | | | | | |
| Mesita---------- | 0-3 | Silty clay loam | CH, CL | A-6, A-7-6 | 0 | 0 | 91-100 | 90-100 | 86-100 | 83-100 | 40-52 | 19-25 |
| | 3-10 | Silty clay, clay, silty clay loam | CH, CL | A-6, A-7-6 | 0 | 0 | 90-100 | 90-100 | 76-100 | 67-96 | 40-59 | 19-32 |
| | 10-21 | Silty clay, clay loam, clay | CH, CL | A-6, A-7-6 | 0 | 0 | 90-100 | 90-100 | 72-100 | 61-90 | 39-59 | 19-32 |
| | 21-38 | Clay, silty clay, clay loam | CH, CL | A-6, A-7-6 | 0 | 0 | 90-100 | 90-100 | 74-100 | 62-91 | 37-55 | 18-29 |
| | 38-46 | Sandy loam, sandy clay loam | SC-SM, SC, CL | A-6, A-7-6, A-2-4 | 0 | 0 | 74-100 | 73-100 | 58-100 | 32-67 | 22-42 | 6-21 |
| | 46-55 | Loamy sand | SC, SM | A-1-b, A-2-4 | 0 | 0 | 76-100 | 75-100 | 45-82 | 13-27 | 0-25 | NP-9 |
| | 55-80 | Clay, clay loam | CL, CH, GC | A-6, A-7-6 | 0 | 0 | 74-100 | 73-100 | 60-99 | 49-84 | 39-55 | 20-32 |
| MuC: | | | | | | | | | | | | |
| Morval---------- | 0-3 | Loam | SC-SM, CL | A-4, A-6 | 0 | 0 | 77-100 | 74-100 | 63-95 | 43-68 | 24-37 | 6-13 |
| | 3-7 | Loam, sandy clay loam, clay loam | SC, CL | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 64-96 | 43-68 | 30-41 | 12-18 |
| | 7-10 | Clay loam, sandy clay loam, loam | CL, SC | A-6 | 0 | 0 | 77-100 | 74-100 | 63-95 | 43-68 | 30-40 | 12-18 |
| | 10-18 | Clay loam, sandy clay loam, loam | CL, SC | A-6 | 0 | 0 | 77-100 | 74-100 | 63-95 | 43-68 | 28-39 | 12-18 |
| | 18-50 | Clay loam, sandy clay loam, loam | CL, SC | A-6 | 0 | 0 | 77-100 | 74-100 | 63-95 | 43-68 | 27-37 | 11-16 |
| | 50-80 | Gravelly loam, sandy loam, loam | GC-GM, SC, CL | A-2-4, A-4, A-6 | 0 | 0 | 60-100 | 54-100 | 44-92 | 28-62 | 20-30 | 5-11 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| MuC: | | | | | | | | | | | | |
| Uracca---------- | 0-4 | Very cobbly sandy loam | GC, SC | A-2-4, A-2-6 | 0 | 0-38 | 45-73 | 38-70 | 29-58 | 16-33 | 26-34 | 9-13 |
| | 4-11 | Very cobbly sandy clay loam | GC, GW-GC | A-2-7, A-2-6 | 0-9 | 18-51 | 39-61 | 31-56 | 23-52 | 10-28 | 30-46 | 12-24 |
| | 11-18 | Very cobbly sandy clay loam | GC, GW-GC | A-2-7, A-2-4, A-2-6 | 0-9 | 18-51 | 39-61 | 31-56 | 24-54 | 10-29 | 28-43 | 10-22 |
| | 18-24 | Extremely cobbly sandy loam | GC-GM, GP | A-2-4, A-1-a | 0-8 | 24-43 | 24-58 | 14-53 | 9-39 | 3-18 | 0-27 | NP-7 |
| | 24-52 | Extremely cobbly sandy loam | GP, GC-GM, GW-GC | A-1-a, A-2-4 | 0-8 | 24-43 | 24-58 | 14-53 | 9-41 | 3-19 | 0-27 | NP-7 |
| | 52-80 | Extremely cobbly sandy loam | GW-GC, GC-GM, GP | A-1-a, A-2-4 | 0-8 | 24-43 | 24-58 | 14-53 | 9-40 | 3-16 | 0-25 | NP-7 |
| MuE: | | | | | | | | | | | | |
| Morval---------- | 0-3 | Loam | SC-SM, CL | A-4, A-6 | 0 | 0 | 77-100 | 74-100 | 63-95 | 43-68 | 24-37 | 6-13 |
| | 3-7 | Loam, sandy clay loam, clay loam | SC, CL | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 64-96 | 43-68 | 30-41 | 12-18 |
| | 7-10 | Clay loam, sandy clay loam, loam | CL, SC | A-6 | 0 | 0 | 77-100 | 74-100 | 63-95 | 43-68 | 30-40 | 12-18 |
| | 10-18 | Clay loam, sandy clay loam, loam | CL, SC | A-6 | 0 | 0 | 77-100 | 74-100 | 63-95 | 43-68 | 28-39 | 12-18 |
| | 18-50 | Clay loam, sandy clay loam, loam | CL, SC | A-6 | 0 | 0 | 77-100 | 74-100 | 63-95 | 43-68 | 27-37 | 11-16 |
| | 50-80 | Gravelly loam, sandy loam, loam | GC-GM, SC, CL | A-2-4, A-4, A-6 | 0 | 0 | 60-100 | 54-100 | 44-92 | 28-62 | 20-30 | 5-11 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| MuE: | | | | | | | | | | | | |
| Uracca---------- | 0-4 | Very cobbly sandy loam | GC, SC | A-2-4, A-2-6 | 0 | 0-38 | 45-73 | 38-70 | 29-58 | 16-33 | 26-34 | 9-13 |
| | 4-11 | Very cobbly sandy clay loam | GC, GW-GC | A-2-7, A-2-6 | 0-9 | 18-51 | 39-61 | 31-56 | 23-52 | 10-28 | 30-46 | 12-24 |
| | 11-18 | Very cobbly sandy clay loam | GC, GW-GC | A-2-7, A-2-4, A-2-6 | 0-9 | 18-51 | 39-61 | 31-56 | 24-54 | 10-29 | 28-43 | 10-22 |
| | 18-24 | Extremely cobbly sandy loam | GP, GC-GM | A-2-4, A-1-a | 0-8 | 24-43 | 24-58 | 14-53 | 9-39 | 3-18 | 0-27 | NP-7 |
| | 24-52 | Extremely cobbly sandy loam | GP, GC-GM, GW-GC | A-1-a, A-2-4 | 0-8 | 24-43 | 24-58 | 14-53 | 9-41 | 3-19 | 0-27 | NP-7 |
| | 52-80 | Extremely cobbly sandy loam | GW-GC, GC-GM, GP | A-1-a, A-2-4 | 0-8 | 24-43 | 24-58 | 14-53 | 9-40 | 3-16 | 0-25 | NP-7 |
| PtC: | | | | | | | | | | | | |
| Potrio---------- | 0-4 | Gravelly silt loam | GC-GM, CL | A-4, A-6 | 0 | 0-7 | 56-76 | 51-73 | 46-73 | 39-65 | 25-40 | 7-16 |
| | 4-15 | Gravelly loam, gravelly silt loam | CL, GC | A-7-6, A-6 | 0 | 0-7 | 56-76 | 51-73 | 46-73 | 39-66 | 29-45 | 12-22 |
| | 15-24 | Gravelly silt loam, gravelly loam, gravelly clay loam | CL, GC | A-2-6, A-6, A-7-6 | 0 | 0-31 | 43-76 | 35-73 | 32-73 | 27-65 | 28-41 | 11-21 |
| | 24-30 | Very cobbly loam, gravelly loam, gravelly silt loam | CL, GC | A-2-4, A-6, A-4 | 0 | 0-31 | 43-76 | 35-73 | 33-73 | 28-66 | 28-40 | 9-21 |
| | 30-36 | Very gravelly loam, very cobbly loam | CL, GC-GM | A-1-b, A-6, A-4 | 0 | 0-40 | 36-74 | 36-74 | 31-74 | 24-61 | 25-40 | 6-21 |
| | 36-42 | Extremely cobbly sandy loam, very cobbly sandy loam | GC-GM, GC, GW | A-1-b, A-2-6, A-1-a | 0 | 25-51 | 19-67 | 8-62 | 6-52 | 4-35 | 22-30 | 3-13 |
| | 42-80 | Bedrock | | | --- | --- | --- | --- | --- | --- | 0-14 | NP |
| RF: | | | | | | | | | | | | |
| Rock outcrop---- | 0-60 | Bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| RF: | | | | | | | | | | | | |
| Rubble land----- | 0-60 | Boulders | | A-1-a | 86 | 18 | 7 | 7 | --- | --- | 0-14 | NP |
| RrA: | | | | | | | | | | | | |
| Trinchera------- | 0-4 | Fine sandy loam | CL, SC-SM | A-4, A-6 | 0 | 0 | 78-100 | 75-100 | 69-100 | 36-56 | 22-31 | 5-11 |
| | 4-15 | Sandy clay loam, loam | SC, CL | A-6 | 0 | 0 | 77-100 | 75-100 | 63-92 | 42-64 | 28-38 | 12-17 |
| | 15-28 | Loam, sandy clay loam | CL, SC | A-4, A-6 | 0 | 0 | 77-100 | 75-100 | 63-95 | 42-68 | 25-35 | 8-14 |
| | 28-40 | Loam | CL-ML, SM | A-4 | 0 | 0 | 77-100 | 75-100 | 59-89 | 38-61 | 18-27 | 2-6 |
| | 40-56 | Loam | CL-ML, SM, CL | A-4 | 0 | 0 | 77-100 | 75-100 | 59-89 | 38-61 | 19-28 | 3-8 |
| | 56-70 | Loam | SM, CL-ML, CL | A-4 | 0 | 0 | 77-100 | 75-100 | 61-92 | 42-66 | 18-28 | 3-9 |
| | 70-80 | Sandy loam, loam | CL, SC-SM, SM | A-4, A-2-4 | 0 | 0 | 77-100 | 75-100 | 54-82 | 31-52 | 18-28 | 3-9 |
| RrB: | | | | | | | | | | | | |
| Trinchera------- | 0-4 | Fine sandy loam | CL, SC-SM | A-4, A-6 | 0 | 0 | 78-100 | 75-100 | 65-95 | 37-57 | 22-31 | 5-11 |
| | 4-15 | Sandy clay loam, loam | SC, CL | A-6 | 0 | 0 | 77-100 | 75-100 | 63-92 | 42-64 | 28-38 | 12-17 |
| | 15-28 | Loam, sandy clay loam | CL, SC | A-4, A-6 | 0 | 0 | 77-100 | 75-100 | 63-95 | 42-68 | 25-35 | 8-14 |
| | 28-40 | Loam | CL-ML, SM | A-4 | 0 | 0 | 77-100 | 75-100 | 59-89 | 38-61 | 18-27 | 2-6 |
| | 40-56 | Loam | CL-ML, SM, CL | A-4 | 0 | 0 | 77-100 | 75-100 | 59-89 | 38-61 | 19-28 | 3-8 |
| | 56-70 | Loam | SM, CL-ML, CL | A-4 | 0 | 0 | 77-100 | 75-100 | 60-91 | 39-62 | 18-28 | 3-9 |
| | 70-80 | Sandy loam, loam | CL, SC-SM, SM | A-4, A-2-4 | 0 | 0 | 77-100 | 75-100 | 54-82 | 31-52 | 18-28 | 3-9 |
| RrD: | | | | | | | | | | | | |
| Trinchera------- | 0-4 | Fine sandy loam | CL, SC-SM | A-4, A-6 | 0 | 0 | 78-100 | 75-100 | 65-95 | 37-57 | 22-31 | 5-11 |
| | 4-15 | Sandy clay loam, loam | SC, CL | A-6 | 0 | 0 | 77-100 | 75-100 | 63-92 | 42-64 | 28-38 | 12-17 |
| | 15-28 | Loam, sandy clay loam | CL, SC | A-4, A-6 | 0 | 0 | 77-100 | 75-100 | 63-95 | 42-68 | 25-35 | 8-14 |
| | 28-40 | Loam | CL-ML, SM | A-4 | 0 | 0 | 77-100 | 75-100 | 59-89 | 38-61 | 18-27 | 2-6 |
| | 40-56 | Loam | CL-ML, SM, CL | A-4 | 0 | 0 | 77-100 | 75-100 | 59-89 | 38-61 | 19-28 | 3-8 |
| | 56-70 | Loam | SM, CL-ML, CL | A-4 | 0 | 0 | 77-100 | 75-100 | 60-91 | 39-62 | 18-28 | 3-9 |
| | 70-80 | Sandy loam, loam | SM, CL, SC-SM | A-4, A-2-4 | 0 | 0 | 77-100 | 75-100 | 54-82 | 31-52 | 18-28 | 3-9 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| ShA: | | | | | | | | | | | | |
| Shawa | 0-7 | Fine sandy loam | SC, CL, SC-SM | A-2-4, A-6, A-4 | 0 | 0 | 75-100 | 72-100 | 60-92 | 35-57 | 24-35 | 6-11 |
| | 7-28 | Loam | SC, CL | A-6, A-7-6 | 0 | 0 | 75-100 | 72-100 | 62-96 | 48-76 | 30-42 | 12-18 |
| | 28-42 | Loam | SC, CL | A-7-6, A-6 | 0 | 0 | 75-100 | 72-100 | 62-96 | 48-76 | 30-42 | 12-18 |
| | 42-80 | Sandy loam, gravelly sandy loam, very gravelly sandy loam | SC, GC, CL | A-2-4, A-2-6, A-7-6 | 0 | 0 | 52-100 | 46-100 | 35-89 | 23-62 | 26-41 | 9-18 |
| ShC: | | | | | | | | | | | | |
| Shawa | 0-7 | Fine sandy loam | SC, CL, SC-SM | A-6, A-2-4, A-4 | 0 | 0 | 75-100 | 72-100 | 60-92 | 35-57 | 24-35 | 6-11 |
| | 7-28 | Loam | SC, CL | A-6, A-7-6 | 0 | 0 | 75-100 | 72-100 | 62-96 | 48-76 | 30-42 | 12-18 |
| | 28-42 | Loam | SC, CL | A-7-6, A-6 | 0 | 0 | 75-100 | 72-100 | 62-96 | 48-76 | 30-42 | 12-18 |
| | 42-80 | Sandy loam, gravelly sandy loam, very gravelly sandy loam | SC, GC, CL | A-2-4, A-2-6, A-7-6 | 0 | 0 | 52-100 | 46-100 | 35-89 | 23-62 | 26-41 | 9-18 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| SL: | | | | | | | | | | | | |
| Scandard-------- | 0-1 | Slightly decomposed plant material | PT | A-8 | 0 | 0 | 100 | 100 | --- | --- | --- | --- |
| | 1-7 | Cobbly sandy loam | SC-SM, SC | A-6, A-1-b, A-2-6 | 0-7 | 15-22 | 82-95 | 73-91 | 50-72 | 23-38 | 22-37 | 6-13 |
| | 7-11 | Very cobbly sandy loam, very gravelly sandy loam | GW-GC, SC, GC | A-2-6, A-1-a, A-2-4 | 0-10 | 10-22 | 35-85 | 30-80 | 20-60 | 10-30 | 21-33 | 6-13 |
| | 11-18 | Very cobbly sandy clay loam, very gravelly sandy clay loam | GW-GC, GC, SC | A-7-6, A-2-6 | 0-8 | 8-23 | 35-85 | 30-80 | 20-70 | 10-40 | 29-44 | 13-25 |
| | 18-25 | Very gravelly sandy clay loam | GW-GC, GC | A-2-7, A-2-6 | 0-10 | 10-25 | 35-55 | 30-50 | 20-35 | 10-20 | 29-44 | 13-25 |
| | 25-27 | Bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| | 27-60 | Bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Leadville------- | 0-2 | Slightly decomposed plant material | PT | A-8 | 0 | 0 | 100 | 100 | --- | --- | --- | --- |
| | 2-16 | Cobbly sandy loam | SC-SM, SC | A-6, A-1-b, A-2-4 | 1-8 | 8-17 | 77-91 | 67-84 | 49-69 | 24-38 | 20-33 | 6-13 |
| | 16-22 | Very cobbly sandy loam | GP-GC, SC | A-1-a, A-2-6 | 0-6 | 21-24 | 56-73 | 38-64 | 26-50 | 12-26 | 20-32 | 6-13 |
| | 22-48 | Very cobbly sandy clay loam, very cobbly clay loam | SC | A-7-6, A-2-6 | 0-6 | 36-51 | 71-81 | 57-77 | 43-69 | 23-43 | 29-44 | 13-25 |
| | 48-65 | Very cobbly sandy clay loam | SC | A-6, A-2-6 | 1-6 | 37-43 | 63-85 | 50-81 | 39-71 | 21-41 | 29-40 | 13-21 |
| Rock outcrop---- | 0-60 | Bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| SpD: | | | | | | | | | | | | |
| Sanpedro-------- | 0-2 | Very cobbly silt loam | GM, GC-GM, OH | A-7-5, A-2-4, A-4 | 0 | 26-40 | 43-66 | 36-61 | 33-61 | 28-54 | 27-53 | 7-14 |
| | 2-7 | Very cobbly loam, very cobbly silt loam | CL, GC | A-6, A-2-6, A-7-6 | 0 | 26-40 | 43-66 | 36-61 | 33-61 | 26-51 | 31-42 | 12-18 |
| | 7-11 | Very cobbly silt loam, extremely cobbly silt loam, extremely cobbly loam | CL, GC, GW-GC | A-2-6, A-6 | 0 | 26-52 | 19-66 | 8-61 | 7-61 | 6-51 | 30-39 | 11-16 |
| | 11-17 | Extremely cobbly loam, very cobbly sandy loam | GW-GC, GC | A-1-a, A-2-4, A-6 | 0 | 25-56 | 20-67 | 9-62 | 8-58 | 5-43 | 22-32 | 5-11 |
| | 17-80 | Bedrock | | | --- | --- | --- | --- | --- | --- | 0-14 | NP |
| Potrio---------- | 0-4 | Gravelly silt loam | GC-GM, CL | A-4, A-6 | 0 | 0-7 | 56-76 | 51-73 | 46-73 | 39-65 | 25-40 | 7-16 |
| | 4-15 | Gravelly silt loam, gravelly loam | CL, GC | A-7-6, A-6 | 0 | 0-7 | 56-76 | 51-73 | 46-73 | 39-66 | 29-45 | 12-22 |
| | 15-24 | Gravelly silt loam, gravelly clay loam, gravelly loam | CL, GC | A-2-6, A-6, A-7-6 | 0 | 0-31 | 43-76 | 35-73 | 32-73 | 27-65 | 28-41 | 11-21 |
| | 24-30 | Gravelly loam, gravelly silt loam, very cobbly loam | CL, GC | A-2-4, A-6, A-4 | 0 | 0-31 | 43-76 | 35-73 | 33-73 | 28-66 | 28-40 | 9-21 |
| | 30-36 | Gravelly loam, very cobbly loam | CL, GC-GM | A-1-b, A-6, A-4 | 0 | 0-40 | 36-74 | 36-74 | 31-74 | 24-61 | 25-40 | 6-21 |
| | 36-42 | Extremely cobbly sandy loam, very cobbly sandy loam | GC-GM, GC, GW | A-1-b, A-2-6, A-1-a | 0 | 25-51 | 19-67 | 8-62 | 6-52 | 4-35 | 22-30 | 3-13 |
| | 42-80 | Bedrock | | | --- | --- | --- | --- | --- | --- | 0-14 | NP |
| Rock outcrop---- | 0-60 | Unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| SpF: | | | | | | | | | | | | |
| Sanpedro-------- | 0-2 | Very cobbly silt loam | GM, GC-GM, OH | A-7-5, A-2-4, A-4 | 0 | 26-40 | 43-66 | 36-61 | 33-61 | 28-54 | 27-53 | 7-14 |
| | 2-7 | Very cobbly loam, very cobbly silt loam | CL, GC | A-6, A-2-6, A-7-6 | 0 | 26-40 | 43-66 | 36-61 | 33-61 | 26-51 | 31-42 | 12-18 |
| | 7-11 | Extremely cobbly silt loam, extremely cobbly loam, very cobbly silt loam | CL, GC, GW-GC | A-2-6, A-6 | 0 | 26-52 | 19-66 | 8-61 | 7-61 | 6-51 | 30-39 | 11-16 |
| | 11-17 | Extremely cobbly loam, very cobbly sandy loam | GW-GC, GC | A-1-a, A-2-4, A-6 | 0 | 25-56 | 20-67 | 9-62 | 8-58 | 5-43 | 22-32 | 5-11 |
| | 17-80 | Bedrock | | | --- | --- | --- | --- | --- | --- | 0-14 | NP |
| Potrio---------- | 0-4 | Gravelly silt loam | GC-GM, CL | A-4, A-6 | 0 | 0-7 | 56-76 | 51-73 | 46-73 | 39-65 | 25-40 | 7-16 |
| | 4-15 | Gravelly silt loam, gravelly loam | CL, GC | A-7-6, A-6 | 0 | 0-7 | 56-76 | 51-73 | 46-73 | 39-66 | 29-45 | 12-22 |
| | 15-24 | Gravelly silt loam, gravelly clay loam, gravelly loam | CL, GC | A-2-6, A-6, A-7-6 | 0 | 0-31 | 43-76 | 35-73 | 32-73 | 27-65 | 28-41 | 11-21 |
| | 24-30 | Gravelly loam, gravelly silt loam, very cobbly loam | CL, GC | A-2-4, A-6, A-4 | 0 | 0-31 | 43-76 | 35-73 | 33-73 | 28-66 | 28-40 | 9-21 |
| | 30-36 | Gravelly loam, very cobbly loam | CL, GC-GM | A-1-b, A-6, A-4 | 0 | 0-40 | 36-74 | 36-74 | 31-74 | 24-61 | 25-40 | 6-21 |
| | 36-42 | Extremely cobbly sandy loam, very cobbly sandy loam | GC-GM, GC, GW | A-1-b, A-2-6, A-1-a | 0 | 25-51 | 19-67 | 8-62 | 6-52 | 4-35 | 22-30 | 3-13 |
| | 42-80 | Bedrock | | | --- | --- | --- | --- | --- | --- | 0-14 | NP |
| Rock outcrop---- | 0-60 | Unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| StB: | | | | | | | | | | | | |
| Stunner | 0-4 | Loam | SC-SM, CL | A-6, A-4 | 0 | 0 | 77-100 | 74-100 | 59-97 | 41-73 | 21-38 | 6-17 |
| | 4-11 | Clay loam, loam | SC, CL | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 61-96 | 46-77 | 32-46 | 14-23 |
| | 11-20 | Clay loam, loam | SC, CL | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 62-98 | 47-78 | 31-43 | 13-20 |
| | 20-25 | Sandy clay loam, loam | SC, CL | A-6, A-7-6, A-4 | 0 | 0 | 77-100 | 74-100 | 61-100 | 45-78 | 27-42 | 9-18 |
| | 25-38 | Sandy clay loam, loam | SC, CL | A-7-6, A-4, A-6 | 0 | 0 | 77-100 | 74-100 | 61-100 | 45-78 | 28-42 | 10-19 |
| | 38-47 | Loam, sandy clay loam | SC, CL | A-7-6, A-6 | 0 | 0 | 77-100 | 74-100 | 62-100 | 45-78 | 28-43 | 11-20 |
| | 47-77 | Sandy clay loam, loam | SC, CL | A-7-6, A-6, A-2-6 | 0 | 0 | 78-100 | 76-100 | 62-100 | 33-61 | 27-42 | 11-20 |
| | 77-80 | Very gravelly sand, very gravelly loamy sand | GW, GP-GM, GP-GC | A-1-b, A-1-a | 0 | 0 | 35-56 | 27-50 | 19-43 | 1-9 | 0-23 | NP-6 |
| StC: | | | | | | | | | | | | |
| Stunner | 0-4 | Loam | SC-SM, CL | A-6, A-4 | 0 | 0 | 77-100 | 74-100 | 59-97 | 41-73 | 21-38 | 6-17 |
| | 4-11 | Clay loam, loam | SC, CL | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 61-96 | 46-77 | 32-46 | 14-23 |
| | 11-20 | Clay loam, loam | SC, CL | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 62-98 | 47-78 | 31-43 | 13-20 |
| | 20-25 | Sandy clay loam, loam | SC, CL | A-6, A-7-6, A-4 | 0 | 0 | 77-100 | 74-100 | 61-100 | 45-78 | 27-42 | 9-18 |
| | 25-38 | Sandy clay loam, loam | SC, CL | A-7-6, A-4, A-6 | 0 | 0 | 77-100 | 74-100 | 61-100 | 45-78 | 28-42 | 10-19 |
| | 38-47 | Loam, sandy clay loam | SC, CL | A-7-6, A-6 | 0 | 0 | 77-100 | 74-100 | 62-100 | 45-78 | 28-43 | 11-20 |
| | 47-77 | Sandy clay loam, loam | SC, CL | A-7-6, A-6, A-2-6 | 0 | 0 | 78-100 | 76-100 | 62-100 | 33-61 | 27-42 | 11-20 |
| | 77-80 | Very gravelly sand, very gravelly loamy sand | GW, GP-GM, GP-GC | A-1-b, A-1-a | 0 | 0 | 35-56 | 27-50 | 19-43 | 1-9 | 0-23 | NP-6 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| SzF: | | | | | | | | | | | | |
| Seitz---------- | 0-1 | Slightly decomposed plant material | PT | A-8 | 0 | 0 | 100 | 100 | --- | --- | --- | --- |
| | 1-12 | Very gravelly sandy loam | GW-GC, GC | A-1-a, A-2-4, A-2-6 | 0 | 19-28 | 32-56 | 29-54 | 20-43 | 9-23 | 21-32 | 4-11 |
| | 12-16 | Very gravelly clay loam, very gravelly clay | GC | A-7-6, A-2-6, A-2-7 | 0 | 21-30 | 29-53 | 26-51 | 21-51 | 14-38 | 37-58 | 19-35 |
| | 16-18 | Very gravelly loam, very gravelly sandy loam | GW-GC, GC | A-2-6, A-2-4, A-1-a | 0 | 19-28 | 37-59 | 29-54 | 20-43 | 9-23 | 21-32 | 4-11 |
| | 18-40 | Very gravelly clay loam, very gravelly clay | GC | A-2-6, A-2-7, A-7-6 | 0 | 21-38 | 32-53 | 29-51 | 23-51 | 17-41 | 37-58 | 19-35 |
| | 40-55 | Extremely gravelly sandy clay loam, very gravelly loam | GP-GC, GC | A-2-7, A-2-6 | 0 | 29-50 | 22-59 | 19-57 | 16-56 | 8-34 | 29-43 | 13-23 |
| | 55-80 | Extremely gravelly sandy loam, very gravelly sandy loam | GP-GC, GC | A-2-6, A-2-4, A-1-a | 0 | 26-52 | 21-63 | 18-61 | 13-50 | 6-28 | 20-30 | 6-12 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| SzE: | | | | | | | | | | | | |
| Tolvar---------- | 0-2 | Moderately decomposed plant material | PT | A-8 | 0 | 0 | 100 | 100 | --- | --- | --- | --- |
| | 2-8 | Gravelly sandy loam | GC-GM, SC | A-1-b, A-4, A-2-4 | 0 | 0-10 | 55-75 | 50-72 | 37-59 | 22-37 | 21-29 | 4-9 |
| | 8-16 | Very gravelly sandy loam, gravelly sandy loam | GP-GC, GC | A-6, A-2-4 | 0 | 0-19 | 36-76 | 27-73 | 20-62 | 11-40 | 24-37 | 7-16 |
| | 16-20 | Very gravelly sandy loam | GW-GC, GC | A-2-6, A-2-4 | 0 | 19-27 | 38-60 | 30-55 | 21-47 | 12-30 | 24-37 | 7-16 |
| | 20-22 | Very gravelly sandy clay loam | GC, GW-GC | A-2-7, A-2-6 | 0 | 19-27 | 38-60 | 30-55 | 23-53 | 12-32 | 28-44 | 12-23 |
| | 22-39 | Very gravelly clay loam, very gravelly sandy clay loam, extremely gravelly sandy clay loam | GP-GC, GC | A-2-7, A-2-6 | 0 | 18-33 | 28-61 | 18-56 | 14-53 | 7-32 | 28-44 | 12-24 |
| | 39-80 | Extremely gravelly sandy loam, very gravelly sandy loam | GP-GC, GC | A-2-6, A-2-4 | 0 | 18-33 | 24-61 | 14-56 | 10-47 | 5-28 | 22-35 | 7-16 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| TlD: | | | | | | | | | | | | |
| Tolvar---------- | 0-2 | Moderately decomposed plant material | PT | A-8 | 0 | 0 | 100 | 100 | --- | --- | --- | --- |
| | 2-8 | Gravelly sandy loam | GC-GM, SC | A-1-b, A-4, A-2-4 | 0 | 0-10 | 55-75 | 50-72 | 37-59 | 22-37 | 21-29 | 4-9 |
| | 8-16 | Very gravelly sandy loam, gravelly sandy loam | GP-GC, GC | A-6, A-2-4 | 0 | 0-19 | 36-76 | 27-73 | 20-62 | 11-40 | 24-37 | 7-16 |
| | 16-20 | Very gravelly sandy loam | GC, GW-GC | A-2-6, A-2-4 | 0 | 19-27 | 38-60 | 30-55 | 21-47 | 12-30 | 24-37 | 7-16 |
| | 20-22 | Very gravelly sandy clay loam | GC, GW-GC | A-2-7, A-2-6 | 0 | 19-27 | 38-60 | 30-55 | 23-53 | 12-32 | 28-44 | 12-23 |
| | 22-39 | Very gravelly clay loam, very gravelly sandy clay loam, extremely gravelly sandy clay loam | GP-GC, GC | A-2-7, A-2-6 | 0 | 18-33 | 28-61 | 18-56 | 14-53 | 7-32 | 28-44 | 12-24 |
| | 39-80 | Extremely gravelly sandy loam, very gravelly sandy loam | GP-GC, GC | A-2-6, A-2-4 | 0 | 18-33 | 24-61 | 14-56 | 10-47 | 5-28 | 22-35 | 7-16 |
| Laveta---------- | 0-1 | Slightly decomposed plant material | PT | A-8 | 0 | 0 | 100 | 100 | --- | --- | --- | --- |
| | 1-9 | Gravelly fine sandy loam | GM, SC-SM | A-4, A-2-4 | 0 | 0-17 | 63-78 | 58-75 | 47-68 | 26-41 | 0-26 | NP-7 |
| | 9-17 | Very gravelly fine sandy loam, very gravelly loam | GM, GC-GM, GC | A-2-4, A-1-a, A-6 | 0 | 0-31 | 43-78 | 35-76 | 29-72 | 15-46 | 17-30 | 2-11 |
| | 17-26 | Extremely gravelly fine sandy loam | GM, GP-GM, GC-GM | A-1-a, A-2-4 | 0 | 23-36 | 31-41 | 22-34 | 19-31 | 11-20 | 0-23 | NP-7 |
| | 26-80 | Bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| TlF: | | | | | | | | | | | | |
| Tolvar---------- | 0-2 | Moderately decomposed plant material | PT | A-8 | 0 | 0 | 100 | 100 | --- | --- | --- | --- |
| | 2-8 | Gravelly sandy loam | GC-GM, SC | A-1-b, A-4, A-2-4 | 0 | 0-10 | 55-75 | 50-72 | 37-59 | 22-37 | 21-29 | 4-9 |
| | 8-16 | Very gravelly sandy loam, gravelly sandy loam | GP-GC, GC | A-6, A-2-4 | 0 | 0-19 | 36-76 | 27-73 | 20-62 | 11-40 | 24-37 | 7-16 |
| | 16-20 | Very gravelly sandy loam | GC, GW-GC | A-2-6, A-2-4 | 0 | 19-27 | 38-60 | 30-55 | 21-47 | 12-30 | 24-37 | 7-16 |
| | 20-22 | Very gravelly sandy clay loam | GC, GW-GC | A-2-7, A-2-6 | 0 | 19-27 | 38-60 | 30-55 | 23-53 | 12-32 | 28-44 | 12-23 |
| | 22-39 | Very gravelly clay loam, very gravelly sandy clay loam, extremely gravelly sandy clay loam | GP-GC, GC | A-2-7, A-2-6 | 0 | 18-33 | 28-61 | 18-56 | 14-53 | 7-32 | 28-44 | 12-24 |
| | 39-80 | Extremely gravelly sandy loam, very gravelly sandy loam | GP-GC, GC | A-2-6, A-2-4 | 0 | 18-33 | 24-61 | 14-56 | 10-47 | 5-28 | 22-35 | 7-16 |
| Laveta---------- | 0-1 | Slightly decomposed plant material | PT | A-8 | 0 | 0 | 100 | 100 | --- | --- | --- | --- |
| | 1-9 | Gravelly fine sandy loam | GM, SC-SM | A-4, A-2-4 | 0 | 0-17 | 63-78 | 58-75 | 47-68 | 26-41 | 0-26 | NP-7 |
| | 9-17 | Very gravelly fine sandy loam, very gravelly loam | GM, GC-GM, GC | A-2-4, A-1-a, A-6 | 0 | 0-31 | 43-78 | 35-76 | 29-72 | 15-46 | 17-30 | 2-11 |
| | 17-26 | Extremely gravelly fine sandy loam | GM, GP-GM, GC-GM | A-1-a, A-2-4 | 0 | 23-36 | 31-41 | 22-34 | 19-31 | 11-20 | 0-23 | NP-7 |
| | 26-80 | Bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock outcrop---- | 0-60 | Unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| ToF: | | | | | | | | | | | | |
| Tolvar---------- | 0-2 | Moderately decomposed plant material | PT | A-8 | 0 | 0 | 100 | 100 | --- | --- | --- | --- |
| | 2-8 | Gravelly sandy loam | GC-GM, SC | A-4, A-2-4 | 0 | 0-10 | 55-75 | 50-72 | 37-59 | 22-37 | 21-29 | 4-9 |
| | 8-16 | Very gravelly sandy loam, gravelly sandy loam | GP-GC, GC | A-6, A-2-4 | 0 | 0-19 | 36-76 | 27-73 | 20-62 | 11-40 | 24-37 | 7-16 |
| | 16-20 | Very gravelly sandy loam | GW-GC, GC | A-2-6, A-2-4 | 0 | 19-27 | 38-60 | 30-55 | 21-47 | 12-30 | 24-37 | 7-16 |
| | 20-22 | Very gravelly sandy clay loam | GC, GW-GC | A-2-7, A-2-6 | 0 | 19-27 | 38-60 | 30-55 | 23-53 | 12-32 | 28-44 | 12-23 |
| | 22-39 | Very gravelly clay loam, very gravelly sandy clay loam, extremely gravelly sandy clay loam | GW-GC, GC | A-2-7, A-2-6 | 0 | 18-33 | 28-61 | 18-56 | 14-53 | 7-32 | 28-44 | 12-24 |
| | 39-80 | Extremely gravelly sandy loam, very gravelly sandy loam | GP-GC, GC | A-2-6, A-2-4 | 0 | 18-33 | 24-61 | 14-56 | 10-47 | 5-28 | 22-35 | 7-16 |
| TvD: | | | | | | | | | | | | |
| Travelers------- | 0-3 | Gravelly sandy loam | SC, SM | A-2-4, A-4 | 0-9 | 9-18 | 66-83 | 61-81 | 46-70 | 27-45 | 18-30 | 2-10 |
| | 3-7 | Very cobbly loam, very cobbly sandy loam, extremely stony sandy loam | GC, SC-SM, GP-GM | A-1-a, A-2-4 | 0-39 | 25-45 | 29-67 | 20-62 | 14-52 | 8-33 | 17-27 | 1-8 |
| | 7-13 | Very cobbly loam, very cobbly sandy loam, extremely stony sandy loam | GM, GC-GM, GP-GM | A-1-b, A-1-a, A-2-4 | 0-39 | 25-45 | 29-67 | 20-62 | 14-52 | 8-33 | 16-25 | 1-6 |
| | 13-80 | Bedrock | | | --- | --- | --- | --- | --- | --- | 0-14 | NP |
| Rock outcrop---- | 0-60 | Unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| TvF: | | | | | | | | | | | | |
| Travelers------- | 0-3 | Gravelly sandy loam | SC, SM | A-2-4, A-4 | 0-9 | 9-18 | 66-83 | 61-81 | 46-70 | 27-45 | 18-30 | 2-10 |
| | 3-7 | Very cobbly loam, very cobbly sandy loam, extremely stony sandy loam | GC, GC-GM, GP-GM | A-1-b, A-1-a, A-2-4 | 0-39 | 25-45 | 29-67 | 20-62 | 14-52 | 8-33 | 17-27 | 1-8 |
| | 7-13 | Very cobbly loam, very cobbly sandy loam, extremely stony sandy loam | GM, GC-GM, GP-GM | A-1-b, A-1-a, A-2-4 | 0-39 | 25-45 | 29-67 | 20-62 | 14-52 | 8-33 | 16-25 | 1-6 |
| | 13-80 | Bedrock | | | --- | --- | --- | --- | --- | --- | 0-14 | NP |
| Rock outcrop---- | 0-60 | Unweathered bedrock | | | --- | --- | --- | --- | --- | --- | --- | --- |
| UmF: | | | | | | | | | | | | |
| Uracca---------- | 0-4 | Very cobbly sandy loam | GC, SC | A-2-4, A-2-6 | 0 | 0-38 | 45-73 | 38-70 | 29-58 | 16-33 | 26-34 | 9-13 |
| | 4-11 | Very cobbly sandy clay loam | GC, GW-GC | A-2-7, A-2-6 | 0-9 | 18-51 | 39-61 | 31-56 | 24-52 | 11-28 | 31-46 | 13-24 |
| | 11-18 | Very cobbly sandy clay loam | GC, GW-GC | A-2-7, A-2-6 | 0-9 | 18-51 | 39-61 | 31-56 | 25-54 | 11-29 | 29-43 | 12-22 |
| | 18-24 | Extremely cobbly sandy loam | GP, GC-GM | A-2-4, A-1-a | 0-8 | 24-43 | 24-58 | 14-53 | 9-39 | 3-18 | 0-27 | NP-7 |
| | 24-52 | Extremely cobbly sandy loam | GP, GW-GC, GC-GM | A-1-a, A-2-4 | 0-8 | 24-43 | 24-58 | 14-53 | 9-41 | 3-19 | 0-27 | NP-7 |
| | 52-80 | Extremely cobbly sandy loam | GW-GC, GP, GC-GM | A-1-a, A-2-4 | 0-8 | 24-43 | 24-58 | 14-53 | 9-41 | 3-19 | 0-25 | NP-7 |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| UmF: | | | | | | | | | | | | |
| Morval---------- | 0-3 | Loam | SC-SM, CL | A-4, A-6 | 0 | 0 | 77-100 | 74-100 | 63-95 | 43-68 | 24-37 | 6-13 |
| | 3-7 | Loam, sandy clay loam, clay loam | SC, CL | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 64-96 | 43-68 | 30-41 | 12-18 |
| | 7-10 | Clay loam, sandy clay loam, loam | CL, SC | A-6 | 0 | 0 | 77-100 | 74-100 | 63-95 | 43-68 | 30-40 | 12-18 |
| | 10-18 | Clay loam, sandy clay loam, loam | CL, SC | A-6 | 0 | 0 | 77-100 | 74-100 | 63-95 | 43-68 | 28-39 | 12-18 |
| | 18-50 | Clay loam, sandy clay loam, loam | CL, SC | A-6 | 0 | 0 | 77-100 | 74-100 | 63-95 | 43-68 | 27-37 | 11-16 |
| | 50-80 | Gravelly loam, sandy loam, loam | GC-GM, SC, CL | A-2-4, A-4, A-6 | 0 | 0 | 60-100 | 54-100 | 44-92 | 28-62 | 20-30 | 5-11 |
| UrF: | | | | | | | | | | | | |
| Uracca---------- | 0-4 | Very cobbly sandy loam | GC, SC | A-2-4, A-2-6 | 0 | 0-38 | 45-73 | 38-70 | 29-58 | 16-33 | 26-34 | 9-13 |
| | 4-11 | Very cobbly sandy clay loam | GC, GW-GC | A-2-7, A-2-6 | 0-9 | 18-51 | 39-61 | 31-56 | 23-52 | 10-28 | 30-46 | 12-24 |
| | 11-18 | Very cobbly sandy clay loam | GC, GW-GC | A-2-7, A-2-4, A-2-6 | 0-9 | 18-51 | 39-61 | 31-56 | 24-54 | 10-29 | 28-43 | 10-22 |
| | 18-24 | Extremely cobbly sandy loam | GC-GM, GP | A-2-4, A-1-a | 0-8 | 24-43 | 24-58 | 14-53 | 9-39 | 3-18 | 0-27 | NP-7 |
| | 24-52 | Extremely cobbly sandy loam | GP, GC-GM, GW-GC | A-1-a, A-2-4 | 0-8 | 24-43 | 24-58 | 14-53 | 9-41 | 3-19 | 0-27 | NP-7 |
| | 52-80 | Extremely cobbly sandy loam | GW-GC, GC-GM, GP | A-1-a, A-2-4 | 0-8 | 24-43 | 24-58 | 14-53 | 9-40 | 3-16 | 0-25 | NP-7 |
| Culebra--------- | 0-3 | Very gravelly coarse sandy loam | GC, GW-GC, GC-GM | A-1-a, A-2-4, A-2-6 | 0 | 8-16 | 38-60 | 30-54 | 18-37 | 9-22 | 20-30 | 4-11 |
| | 3-11 | Very gravelly coarse sandy loam | GW, GC, GP-GC | A-1-a, A-2-4 | 0 | 0-31 | 18-56 | 7-50 | 3-31 | 1-15 | 0-27 | NP-8 |
| | 11-80 | Bedrock | | | --- | --- | --- | --- | --- | --- | 0-14 | NP |

Table 20.--Engineering properties--continued

| Map symbol and soil name | Depth | USDA texture | Classification | | Fragments | | Percentage passing sieve number-- | | | | Liquid limit | Plasticity index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Unified | AASHTO | >10 inches | 3-10 inches | 4 | 10 | 40 | 200 | | |
| | In. | | | | Pct. | Pct. | | | | | Pct. | |
| VeA: | | | | | | | | | | | | |
| Ventero | 0-8 | Peat | PT | A-8 | 0 | 0 | 100 | 100 | --- | --- | --- | --- |
| | 8-23 | Mucky peat | PT | A-8 | 0 | 0 | 100 | 100 | --- | --- | --- | --- |
| | 23-38 | Silty clay loam | CL | A-6, A-7-6 | 0 | 0 | 91-100 | 90-100 | 82-100 | 74-97 | 33-49 | 13-24 |
| | 38-44 | Muck | PT | A-8 | 0 | 0 | 100 | 100 | --- | --- | --- | --- |
| | 44-60 | Very fine sandy loam | CL, SM | A-4, A-6 | 0 | 0 | 92-100 | 91-100 | 80-100 | 45-64 | 19-35 | 2-13 |
| VgA: | | | | | | | | | | | | |
| Vastine | 0-3 | Loam | SC, CL, ML | A-4, A-7-6, A-6 | 0 | 0 | 77-100 | 74-100 | 59-92 | 42-68 | 27-44 | 9-16 |
| | 3-13 | Loam | SC, CL | A-4, A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 60-94 | 43-70 | 28-41 | 9-17 |
| | 13-21 | Clay loam, loam | SC, CL | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 61-92 | 46-71 | 34-44 | 16-21 |
| | 21-27 | Loam, clay loam | CL | A-6, A-7-6 | 0 | 0 | 77-100 | 74-100 | 65-97 | 50-77 | 33-43 | 16-21 |
| | 27-58 | Sand, loamy sand | SP-SM, SC, SM | A-2-4 | 0 | 0 | 79-100 | 76-100 | 52-82 | 11-29 | 0-27 | NP-9 |
| | 58-80 | Sand, loamy sand | SP-SM, SM, SC | A-2-4, A-3 | 0 | 0 | 79-100 | 76-100 | 55-87 | 7-24 | 0-27 | NP-9 |
| | 80-90 | Extremely gravelly sand | GW-GC, GW, GP | A-1-a | 0 | 0 | 11-31 | 7-28 | 5-23 | 1-6 | 0-22 | NP-5 |
| Gerrard | 0-3 | Sandy loam | SC-SM, SM | A-4, A-6 | 0 | 0 | 100 | 100 | 77-85 | 41-49 | 24-38 | 7-12 |
| | 3-15 | Clay loam | SC-SM, CL | A-4, A-7-6 | 0 | 0 | 100 | 100 | 71-99 | 46-74 | 25-50 | 7-24 |
| | 15-27 | Sand, loamy fine sand | SM, SC-SM | A-4, A-2-4 | 0 | 0 | 100 | 100 | 90-100 | 31-41 | 0-22 | NP-5 |
| | 27-48 | Loamy sand, sand | SC-SM, SP-SM | A-2-4, A-3 | 0 | 0 | 100 | 100 | 77-87 | 10-20 | 0-22 | NP-5 |
| | 48-80 | Extremely gravelly loamy sand, extremely gravelly sand | GW, GP, GW-GC | A-1-a | 0 | 0 | 17-36 | 6-28 | 4-23 | 1-8 | 0-22 | NP-5 |
| W: | | | | | | | | | | | | |
| Water | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

## Table 21.--Physical soil properties

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| AmC: | | | | | | | | | | | | | | |
| Amalia | 0-5 | 52-75 | 15-40 | 6-20 | 1.35-1.50 | 2-6 | 0.05-0.07 | 0.5-2.5 | 0.5-1.5 | .10 | .24 | 5 | 6 | 48 |
| | 5-11 | 40-62 | 28-45 | 10-35 | 1.25-1.40 | 0.2-0.6 | 0.07-0.11 | 1.0-3.5 | 0.0-1.0 | .10 | .32 | | | |
| | 11-25 | 40-62 | 28-45 | 10-26 | 1.25-1.40 | 0.6-2 | 0.07-0.11 | 1.0-3.5 | 0.0-0.5 | .10 | .37 | | | |
| | 25-39 | 52-83 | 8-35 | 5-15 | 1.25-1.50 | 2-6 | 0.05-0.09 | 0.0-1.0 | 0.0-0.5 | .05 | .24 | | | |
| | 39-80 | 52-83 | 8-35 | 5-15 | 1.35-1.60 | 6-20 | 0.02-0.04 | 0.0-1.0 | 0.0-0.5 | .02 | .15 | | | |
| AmE: | | | | | | | | | | | | | | |
| Amalia | 0-5 | 52-75 | 15-40 | 6-20 | 1.35-1.50 | 2-6 | 0.05-0.07 | 0.5-2.5 | 0.5-1.5 | .05 | .17 | 5 | 6 | 48 |
| | 5-11 | 40-62 | 28-45 | 10-35 | 1.25-1.40 | 0.2-0.6 | 0.07-0.11 | 1.0-3.5 | 0.0-1.0 | .10 | .32 | | | |
| | 11-25 | 40-62 | 28-45 | 10-26 | 1.25-1.40 | 0.6-2 | 0.07-0.11 | 1.0-3.5 | 0.0-0.5 | .10 | .37 | | | |
| | 25-39 | 52-83 | 8-35 | 5-15 | 1.25-1.50 | 2-6 | 0.05-0.09 | 0.0-1.0 | 0.0-0.5 | .05 | .24 | | | |
| | 39-80 | 52-83 | 8-35 | 5-15 | 1.35-1.60 | 6-20 | 0.02-0.04 | 0.0-1.0 | 0.0-0.5 | .02 | .15 | | | |
| Aq: | | | | | | | | | | | | | | |
| Cumulic Cryaquolls | 0-6 | 10-40 | 40-70 | 10-26 | 1.20-1.30 | 0.6-2 | 0.13-0.17 | 1.0-4.0 | 5.0-10 | .37 | .37 | 3 | 5 | 56 |
| | 6-20 | 30-52 | 28-50 | 10-26 | 1.30-1.40 | 0.6-2 | 0.16-0.18 | 1.0-4.0 | 2.0-5.0 | .32 | .32 | | | |
| | 20-27 | 30-52 | 28-50 | 10-26 | 1.30-1.40 | 0.6-2 | 0.15-0.18 | 1.0-4.0 | 1.5-3.0 | .32 | .28 | | | |
| | 27-33 | 30-52 | 28-50 | 10-26 | 1.30-1.40 | 0.6-2 | 0.08-0.12 | 0.3-3.0 | 1.0-2.0 | .37 | .17 | | | |
| | 33-80 | 45-75 | 20-50 | 10-20 | 1.30-1.40 | 2-6 | 0.01-0.02 | 0.0-0.3 | 0.5-1.5 | .28 | .02 | | | |
| BfA: | | | | | | | | | | | | | | |
| Blanfort | 0-2 | 52-70 | 15-35 | 5-15 | 1.10-1.30 | 2-6 | 0.13-0.15 | 0.3-2.0 | 0.5-2.0 | .24 | .24 | 5 | 3 | 86 |
| | 2-7 | 52-70 | 15-35 | 8-18 | 1.20-1.40 | 2-6 | 0.13-0.15 | 0.5-2.0 | 0.5-1.0 | .32 | .32 | | | |
| | 7-16 | 52-70 | 15-35 | 8-18 | 1.20-1.40 | 2-6 | 0.13-0.15 | 0.5-2.0 | 0.5-1.0 | .32 | .32 | | | |
| | 16-28 | 52-70 | 15-35 | 5-18 | 1.20-1.40 | 2-6 | 0.13-0.15 | 0.5-2.0 | 0.5-1.0 | .32 | .32 | | | |
| | 28-56 | 52-70 | 15-35 | 5-18 | 1.25-1.45 | 2-6 | 0.13-0.15 | 0.5-2.0 | 0.0-0.5 | .32 | .32 | | | |
| | 56-80 | 52-70 | 15-35 | 5-18 | 1.25-1.45 | 2-6 | 0.11-0.15 | 0.5-2.0 | 0.0-0.5 | .28 | .32 | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| BfD: | | | | | | | | | | | | | | |
| Blanfort | 0-2 | 52-70 | 15-35 | 5-15 | 1.10-1.30 | 2-6 | 0.13-0.15 | 0.3-2.0 | 0.5-2.0 | .24 | .24 | 5 | 3 | 86 |
| | 2-7 | 52-70 | 15-35 | 8-18 | 1.20-1.40 | 2-6 | 0.13-0.15 | 0.5-2.0 | 0.5-1.0 | .32 | .32 | | | |
| | 7-16 | 52-70 | 15-35 | 8-18 | 1.20-1.40 | 2-6 | 0.13-0.15 | 0.5-2.0 | 0.5-1.0 | .32 | .32 | | | |
| | 16-28 | 52-70 | 15-35 | 5-18 | 1.20-1.40 | 2-6 | 0.13-0.15 | 0.5-2.0 | 0.5-1.0 | .32 | .32 | | | |
| | 28-56 | 52-70 | 15-35 | 5-18 | 1.25-1.45 | 2-6 | 0.13-0.15 | 0.5-2.0 | 0.0-0.5 | .32 | .32 | | | |
| | 56-80 | 52-70 | 15-35 | 5-18 | 1.25-1.45 | 2-6 | 0.11-0.15 | 0.5-2.0 | 0.0-0.5 | .28 | .32 | | | |
| CsA: | | | | | | | | | | | | | | |
| Cososa | 0-6 | 75-88 | 5-25 | 0-10 | 1.45-1.60 | 6-20 | 0.05-0.08 | 0.0-0.3 | 0.0-1.0 | .15 | .15 | 4 | 2 | 134 |
| | 6-14 | 55-82 | 5-30 | 10-20 | 1.45-1.55 | 2-6 | 0.07-0.14 | 0.1-1.5 | 0.0-0.5 | .15 | .17 | | | |
| | 14-21 | 80-87 | 0-15 | 5-15 | 1.70-1.80 | 6-20 | 0.05-0.08 | 0.1-1.0 | 0.0-0.5 | .10 | .15 | | | |
| | 21-49 | 45-75 | 0-28 | 20-35 | 1.35-1.45 | 0.6-2 | 0.11-0.16 | 0.1-3.0 | 0.0-0.5 | .15 | .20 | | | |
| | 49-57 | 72-88 | 4-25 | 0-10 | 1.40-1.50 | 6-20 | 0.04-0.07 | 0.0-0.5 | 0.0-0.5 | .10 | .15 | | | |
| | 57-74 | 85-100 | 0-15 | 0-5 | 1.20-1.30 | 20-101 | 0.02-0.05 | 0.0-0.3 | 0.0-0.5 | .02 | .05 | | | |
| | 74-80 | 55-80 | 5-30 | 10-20 | 1.25-1.40 | 2-6 | 0.06-0.12 | 0.0-1.0 | 0.0-0.5 | .24 | .28 | | | |
| CsD: | | | | | | | | | | | | | | |
| Cososa | 0-6 | 75-88 | 5-25 | 0-10 | 1.45-1.60 | 6-20 | 0.05-0.08 | 0.0-0.3 | 0.0-1.0 | .15 | .15 | 4 | 2 | 134 |
| | 6-14 | 55-82 | 5-30 | 10-20 | 1.45-1.55 | 2-6 | 0.07-0.14 | 0.1-1.5 | 0.0-0.5 | .15 | .17 | | | |
| | 14-21 | 80-87 | 0-15 | 5-15 | 1.70-1.80 | 6-20 | 0.05-0.08 | 0.1-1.0 | 0.0-0.5 | .10 | .15 | | | |
| | 21-49 | 45-75 | 0-28 | 20-35 | 1.35-1.45 | 0.6-2 | 0.11-0.16 | 0.1-3.0 | 0.0-0.5 | .15 | .20 | | | |
| | 49-57 | 72-88 | 4-25 | 0-10 | 1.40-1.50 | 6-20 | 0.04-0.07 | 0.0-0.5 | 0.0-0.5 | .10 | .15 | | | |
| | 57-74 | 85-100 | 0-15 | 0-5 | 1.20-1.30 | 20-101 | 0.02-0.05 | 0.0-0.3 | 0.0-0.5 | .02 | .05 | | | |
| | 74-80 | 55-80 | 5-30 | 10-20 | 1.25-1.40 | 2-6 | 0.06-0.12 | 0.0-1.0 | 0.0-0.5 | .24 | .28 | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| CtA: | | | | | | | | | | | | | | |
| Costilla | 0-2 | 70-87 | 10-28 | 1-10 | 1.45-1.60 | 6-20 | 0.05-0.08 | 0.0-0.3 | 0.5-1.0 | .17 | .24 | 5 | 2 | 134 |
| | 2-7 | 70-87 | 5-25 | 2-12 | 1.45-1.60 | 6-20 | 0.05-0.08 | 0.0-0.5 | 0.2-0.8 | .17 | .24 | | | |
| | 7-14 | 80-88 | 4-15 | 4-12 | 1.45-1.60 | 6-20 | 0.05-0.08 | 0.0-1.0 | 0.0-0.5 | .15 | .20 | | | |
| | 14-32 | 80-88 | 4-15 | 4-12 | 1.45-1.60 | 6-20 | 0.04-0.07 | 0.0-1.0 | 0.0-0.5 | .10 | .20 | | | |
| | 32-37 | 85-92 | 2-15 | 0-10 | 1.45-1.60 | 6-20 | 0.04-0.07 | 0.0-0.3 | 0.0-0.5 | .10 | .17 | | | |
| | 37-80 | 85-98 | 2-15 | 0-10 | 1.45-1.60 | 20-101 | 0.03-0.06 | 0.0-0.3 | 0.0-0.5 | .05 | .10 | | | |
| CuF: | | | | | | | | | | | | | | |
| Comodore | 0-5 | 32-63 | 15-50 | 12-26 | 1.25-1.35 | 0.6-2 | 0.06-0.07 | 0.3-2.0 | 1.0-2.0 | .05 | .28 | 1 | 7 | 38 |
| | 5-16 | 32-63 | 15-50 | 20-26 | 1.25-1.35 | 0.6-2 | 0.04-0.05 | 0.3-2.0 | 1.0-1.5 | .05 | .37 | | | |
| | 16-80 | 0-0 | 0-0 | 0-0 | --- | 0.01-20 | --- | 0.0-0.0 | 0.0-0.0 | .02 | .02 | | | |
| Rock outcrop | 0-60 | --- | --- | --- | --- | 0.06-6 | --- | --- | --- | --- | --- | - | --- | --- |
| Uracca | 0-4 | 52-75 | 10-35 | 14-20 | 1.35-1.50 | 2-6 | 0.05-0.07 | 0.3-2.0 | 1.0-2.0 | .05 | .17 | 5 | 6 | 48 |
| | 4-11 | 52-75 | 5-30 | 20-35 | 1.25-1.40 | 0.6-2 | 0.08-0.10 | 1.0-3.0 | 1.0-1.5 | .10 | .24 | | | |
| | 11-18 | 52-75 | 5-30 | 20-35 | 1.25-1.40 | 0.6-2 | 0.08-0.10 | 0.5-2.0 | 0.5-1.0 | .05 | .28 | | | |
| | 18-24 | 60-85 | 8-30 | 5-18 | 1.35-1.60 | 2-6 | 0.01-0.04 | 0.1-1.0 | 0.0-1.0 | .05 | .20 | | | |
| | 24-52 | 60-85 | 8-30 | 5-18 | 1.35-1.60 | 2-6 | 0.01-0.04 | 0.1-0.5 | 0.0-1.0 | .05 | .20 | | | |
| | 52-80 | 60-85 | 5-30 | 5-18 | 1.35-1.60 | 2-6 | 0.01-0.04 | 0.0-0.3 | 0.0-0.0 | .05 | .24 | | | |
| DAM: | | | | | | | | | | | | | | |
| Dam | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| DrD: | | | | | | | | | | | | | | |
| Durreo | 0-6 | 60-75 | 10-35 | 5-18 | 1.35-1.50 | 2-6 | 0.06-0.11 | 0.1-1.0 | 1.0-2.0 | .10 | .17 | 3 | 5 | 56 |
| | 6-14 | 52-75 | 14-35 | 5-18 | 1.25-1.40 | 2-6 | 0.05-0.12 | 0.5-2.0 | 0.0-1.0 | .05 | .20 | | | |
| | 14-34 | 52-75 | 14-35 | 5-18 | 1.35-1.50 | 2-6 | 0.05-0.10 | 0.1-1.0 | 0.0-1.0 | .05 | .20 | | | |
| | 34-80 | 52-75 | 14-35 | 5-18 | 1.25-1.60 | 2-6 | 0.05-0.10 | 0.1-1.0 | 0.0-1.0 | .10 | .20 | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| EaA: | | | | | | | | | | | | | | |
| Eastdale | 0-5 | 25-52 | 28-50 | 18-26 | 1.25-1.60 | 0.6-2 | 0.13-0.18 | 2.0-5.0 | 2.0-10 | .20 | .20 | 5 | 6 | 48 |
| | 5-15 | 15-35 | 33-55 | 27-35 | 1.25-1.60 | 0.2-0.6 | 0.17-0.21 | 3.0-6.0 | 1.0-4.0 | .20 | .20 | | | |
| | 15-30 | 15-45 | 30-55 | 22-35 | 1.25-1.40 | 0.2-0.6 | 0.17-0.21 | 3.0-6.0 | 0.5-1.5 | .32 | .32 | | | |
| | 30-42 | 25-45 | 30-55 | 15-35 | 1.25-1.40 | 0.6-2 | 0.13-0.18 | 1.0-4.0 | 0.2-0.8 | .37 | .37 | | | |
| | 42-59 | 40-70 | 20-38 | 9-24 | 1.25-1.40 | 0.6-2 | 0.13-0.18 | 1.0-4.0 | 0.2-0.8 | .32 | .32 | | | |
| | 59-80 | 50-70 | 20-38 | 9-19 | 1.25-1.40 | 2-6 | 0.08-0.13 | 0.1-2.0 | 0.2-0.8 | .28 | .28 | | | |
| FLB: | | | | | | | | | | | | | | |
| Fluvents | 0-6 | --- | --- | 0-1 | 1.90-2.00 | 6-20 | 0.02-0.03 | 0.0-2.9 | 0.0-0.1 | .02 | .10 | 5 | 8 | 0 |
| | 6-60 | --- | --- | 0-1 | 1.90-2.00 | 6-20 | 0.02-0.03 | 0.0-2.9 | 0.0-0.1 | .05 | .10 | | | |
| FtA: | | | | | | | | | | | | | | |
| Fuertes | 0-3 | 26-60 | 30-48 | 10-18 | 1.25-1.40 | 2-6 | 0.12-0.17 | 0.5-3.0 | 1.5-6.0 | .24 | .24 | 4 | 3 | 86 |
| | 3-7 | 26-50 | 28-48 | 18-35 | 1.25-1.40 | 0.6-2 | 0.13-0.19 | 1.0-4.0 | 1.0-1.5 | .32 | .32 | | | |
| | 7-22 | 26-50 | 28-48 | 14-35 | 1.25-1.40 | 0.6-2 | 0.13-0.20 | 1.0-4.0 | 0.5-1.5 | .37 | .37 | | | |
| | 22-40 | 26-50 | 28-48 | 18-35 | 1.25-1.40 | 0.6-2 | 0.13-0.20 | 1.0-5.0 | 0.2-1.0 | .37 | .37 | | | |
| | 40-54 | 26-50 | 30-48 | 18-35 | 1.25-1.40 | 0.6-2 | 0.13-0.19 | 0.5-3.0 | 0.0-0.5 | .37 | .37 | | | |
| | 54-80 | 80-100 | 0-20 | 0-7 | 1.25-1.60 | 6-101 | 0.03-0.06 | 0.0-0.3 | 0.0-0.5 | .05 | .10 | | | |
| GmE: | | | | | | | | | | | | | | |
| Aquic Dystrocryepts | 0-11 | --- | --- | 10-20 | 1.25-1.40 | 0.6-2 | 0.10-0.14 | 0.0-2.9 | 2.0-10 | .10 | .20 | 5 | 6 | 48 |
| | 11-20 | --- | --- | 10-20 | 1.25-1.50 | 2-6 | 0.07-0.13 | 0.0-2.9 | 1.0-3.0 | .15 | .28 | | | |
| | 20-34 | --- | --- | 10-20 | 1.25-1.50 | 2-6 | 0.07-0.13 | 0.0-2.9 | 0.0-2.0 | .15 | .28 | | | |
| | 34-60 | --- | --- | 5-20 | 1.25-1.50 | 2-6 | 0.05-0.09 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| Gn: | | | | | | | | | | | | | | |
| Angostura | 0-1 | --- | --- | 10-20 | 0.20-1.00 | 14-43 | 0.15-0.45 | --- | 70-95 | --- | --- | 5 | 7 | 38 |
| | 1-12 | --- | --- | 10-20 | 1.25-1.40 | 2-6 | 0.07-0.09 | 0.0-2.9 | 0.5-1.0 | .15 | .37 | | | |
| | 12-24 | --- | --- | 15-25 | 1.25-1.40 | 0.6-2 | 0.07-0.11 | 0.0-2.9 | 0.0-0.5 | .15 | .43 | | | |
| | 24-46 | --- | --- | 20-30 | 1.25-1.40 | 0.6-2 | 0.07-0.11 | 0.5-2.9 | 0.0-0.5 | .10 | .28 | | | |
| | 46-61 | --- | --- | 20-30 | 1.25-1.40 | 0.6-2 | 0.07-0.11 | 0.5-2.9 | 0.0-0.5 | .10 | .28 | | | |
| | 61-72 | --- | --- | 20-30 | 1.25-1.40 | 0.6-2 | 0.07-0.11 | 0.0-2.9 | 0.0-0.5 | .10 | .28 | | | |
| GP: | | | | | | | | | | | | | | |
| Pits, gravel | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| GpA: | | | | | | | | | | | | | | |
| Graypoint | 0-5 | 55-80 | 5-30 | 14-20 | 1.35-1.50 | 2-6 | 0.08-0.14 | 0.5-3.0 | 0.5-1.0 | .05 | .10 | 2 | 3 | 86 |
| | 5-12 | 35-60 | 15-40 | 22-32 | 1.25-1.40 | 0.6-2 | 0.12-0.17 | 2.0-5.0 | 0.0-0.5 | .24 | .32 | | | |
| | 12-16 | 45-60 | 12-40 | 9-27 | 1.25-1.40 | 0.6-2 | 0.07-0.12 | 0.5-3.0 | 0.0-0.5 | .10 | .32 | | | |
| | 16-21 | 80-100 | 0-15 | 0-10 | 1.45-1.60 | 6-101 | 0.02-0.06 | 0.0-0.3 | 0.0-0.5 | .05 | .24 | | | |
| | 21-36 | 86-100 | 0-15 | 0-6 | 1.45-1.60 | 6-101 | 0.02-0.06 | 0.0-0.3 | 0.0-0.5 | .02 | .15 | | | |
| | 36-80 | 90-100 | 0-10 | 0-6 | 1.45-1.50 | 20-101 | 0.02-0.06 | 0.0-0.3 | 0.0-0.5 | .02 | .05 | | | |
| GrA: | | | | | | | | | | | | | | |
| Grayco | 0-4 | 50-80 | 10-40 | 12-20 | 1.35-1.50 | 2-6 | 0.08-0.14 | 1.0-3.0 | 1.0-2.0 | .10 | .10 | 2 | 3 | 86 |
| | 4-14 | 35-65 | 15-40 | 12-27 | 1.25-1.40 | 0.6-2 | 0.13-0.17 | 2.0-5.0 | 0.5-1.0 | .24 | .32 | | | |
| | 14-18 | 35-65 | 15-40 | 10-27 | 1.25-1.40 | 2-6 | 0.08-0.13 | 0.5-3.0 | 0.2-1.0 | .10 | .32 | | | |
| | 18-24 | 60-95 | 2-37 | 1-8 | 1.45-1.60 | 6-20 | 0.02-0.06 | 0.0-0.3 | 0.0-0.5 | .02 | .20 | | | |
| | 24-43 | 87-100 | 0-13 | 0-5 | 1.45-1.60 | 20-101 | 0.02-0.06 | 0.0-0.3 | 0.0-0.5 | .02 | .10 | | | |
| | 43-80 | 87-100 | 0-13 | 0-5 | 1.45-1.60 | 20-101 | 0.02-0.06 | 0.0-0.3 | 0.0-0.5 | .02 | .10 | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| GrC: | | | | | | | | | | | | | | |
| Grayco | 0-4 | 50-80 | 10-40 | 12-20 | 1.35-1.50 | 2-6 | 0.08-0.14 | 1.0-3.0 | 1.0-2.0 | .10 | .10 | 2 | 3 | 86 |
| | 4-14 | 35-65 | 15-40 | 12-27 | 1.25-1.40 | 0.6-2 | 0.13-0.17 | 2.0-5.0 | 0.5-1.0 | .24 | .32 | | | |
| | 14-18 | 35-65 | 15-40 | 10-27 | 1.25-1.40 | 2-6 | 0.08-0.13 | 0.5-3.0 | 0.5-1.0 | .10 | .32 | | | |
| | 18-24 | 60-95 | 2-37 | 1-8 | 1.45-1.60 | 6-20 | 0.02-0.06 | 0.0-0.3 | 0.0-0.5 | .02 | .20 | | | |
| | 24-43 | 87-100 | 0-13 | 0-5 | 1.45-1.60 | 20-101 | 0.02-0.06 | 0.0-0.3 | 0.0-0.5 | .02 | .10 | | | |
| | 43-80 | 87-100 | 0-13 | 0-5 | 1.45-1.60 | 20-101 | 0.02-0.06 | 0.0-0.3 | 0.0-0.5 | .02 | .10 | | | |
| Ho: | | | | | | | | | | | | | | |
| Hooper, loamy sand-- | 0-5 | 77-89 | 0-20 | 2-15 | 1.45-1.60 | 6-20 | 0.06-0.08 | 0.1-1.0 | 0.0-1.0 | .15 | .15 | 2 | 2 | 134 |
| | 5-10 | --- | 10-25 | 20-50 | 1.15-1.40 | 0.06-0.2 | 0.13-0.21 | 4.5-8.0 | 0.0-0.5 | .24 | .24 | | | |
| | 10-18 | 30-75 | 10-25 | 20-50 | 1.15-1.40 | 0.06-0.2 | 0.13-0.21 | 4.0-7.0 | 0.0-0.5 | .24 | .24 | | | |
| | 18-23 | 45-75 | 10-25 | 20-35 | 1.25-1.50 | 0.6-2 | 0.09-0.18 | 2.5-5.0 | 0.0-0.5 | .24 | .24 | | | |
| | 23-37 | 77-95 | 10-25 | 2-10 | 1.25-1.60 | 6-20 | 0.06-0.11 | 0.0-0.3 | 0.0-0.5 | .24 | .24 | | | |
| | 37-50 | 71-95 | 0-20 | 2-10 | 1.25-1.60 | 6-20 | 0.05-0.11 | 0.0-0.5 | 0.0-0.5 | .17 | .17 | | | |
| | 50-80 | 71-100 | 0-20 | 0-10 | 1.45-1.60 | 20-101 | 0.05-0.08 | 0.0-0.3 | 0.0-0.5 | .05 | .05 | | | |
| Hooper, clay loam--- | 0-4 | 27-45 | 16-50 | 27-40 | 1.25-1.40 | 0.2-0.6 | 0.17-0.21 | 2.5-5.0 | 0.5-1.0 | .32 | .32 | 2 | 4L | 86 |
| | 4-12 | 15-35 | 22-46 | 32-50 | 1.15-1.40 | 0.06-0.2 | 0.13-0.21 | 4.5-7.5 | 0.0-1.0 | .24 | .24 | | | |
| | 12-26 | 20-40 | 22-48 | 30-45 | 1.25-1.40 | 0.06-0.2 | 0.13-0.20 | 3.5-6.0 | 0.0-1.0 | .24 | .24 | | | |
| | 26-33 | 20-40 | 22-48 | 30-40 | 1.25-1.40 | 0.2-0.6 | 0.17-0.21 | 3.0-5.5 | 0.0-1.0 | .32 | .32 | | | |
| | 33-37 | 55-75 | 10-28 | 12-30 | 1.25-1.50 | 0.6-2 | 0.08-0.18 | 1.0-3.0 | 0.0-1.0 | .20 | .24 | | | |
| | 37-50 | 77-95 | 0-22 | 0-10 | 1.45-1.60 | 20-101 | 0.05-0.08 | 0.0-0.3 | 0.0-1.0 | .15 | .15 | | | |
| | 50-72 | 77-100 | 0-22 | 0-10 | 1.45-1.60 | 20-101 | 0.05-0.08 | 0.0-0.3 | 0.0-1.0 | .05 | .05 | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| Hp: | | | | | | | | | | | | | | |
| Hooper, clay loam--- | 0-4 | 27-45 | 16-50 | 27-40 | 1.25-1.40 | 0.2-0.6 | 0.17-0.21 | 2.5-5.0 | 0.5-1.0 | .32 | .32 | 2 | 4L | 86 |
| | 4-12 | 15-35 | 22-46 | 32-50 | 1.15-1.40 | 0.06-0.2 | 0.13-0.21 | 4.5-7.5 | 0.0-1.0 | .24 | .24 | | | |
| | 12-26 | 20-40 | 22-48 | 30-45 | 1.25-1.40 | 0.06-0.2 | 0.13-0.20 | 3.5-6.0 | 0.0-1.0 | .24 | .24 | | | |
| | 26-33 | 20-40 | 22-48 | 30-40 | 1.25-1.40 | 0.2-0.6 | 0.17-0.21 | 3.0-5.5 | 0.0-1.0 | .32 | .32 | | | |
| | 33-37 | 55-75 | 10-28 | 20-30 | 1.25-1.50 | 0.6-2 | 0.08-0.18 | 1.0-3.0 | 0.0-1.0 | .20 | .24 | | | |
| | 37-50 | 77-95 | 0-22 | 0-10 | 1.45-1.60 | 20-101 | 0.05-0.08 | 0.0-0.3 | 0.0-1.0 | .15 | .15 | | | |
| | 50-72 | 77-100 | 0-22 | 0-10 | 1.45-1.60 | 20-101 | 0.05-0.08 | 0.0-0.3 | 0.0-1.0 | .05 | .05 | | | |
| Hooper, loamy sand-- | 0-5 | 77-89 | 0-20 | 2-15 | 1.45-1.60 | 6-20 | 0.06-0.08 | 0.1-1.0 | 0.0-1.0 | .15 | .15 | 2 | 2 | 134 |
| | 5-10 | --- | 10-25 | 20-50 | 1.15-1.40 | 0.06-0.2 | 0.13-0.21 | 4.5-8.0 | 0.0-0.5 | .24 | .24 | | | |
| | 10-18 | 30-75 | 10-25 | 20-50 | 1.15-1.40 | 0.06-0.2 | 0.13-0.21 | 4.0-7.0 | 0.0-0.5 | .24 | .24 | | | |
| | 18-23 | 45-75 | 10-25 | 10-35 | 1.25-1.50 | 0.6-2 | 0.09-0.18 | 2.5-5.0 | 0.0-0.5 | .24 | .24 | | | |
| | 23-37 | 77-95 | 10-25 | 2-10 | 1.25-1.60 | 6-20 | 0.06-0.11 | 0.0-0.3 | 0.0-0.5 | .24 | .24 | | | |
| | 37-50 | 71-95 | 0-20 | 2-10 | 1.25-1.60 | 6-20 | 0.05-0.11 | 0.0-0.5 | 0.0-0.5 | .17 | .17 | | | |
| | 50-80 | 71-100 | 0-20 | 0-10 | 1.45-1.60 | 20-101 | 0.05-0.08 | 0.0-0.3 | 0.0-0.5 | .05 | .05 | | | |
| KbA: | | | | | | | | | | | | | | |
| Kibin---------- | 0-1 | 48-82 | 0-31 | 15-19 | 1.35-1.50 | 2-6 | 0.07-0.15 | 1.0-3.0 | 1.0-3.0 | .20 | .20 | 3 | 3 | 86 |
| | 1-3 | 48-78 | 0-28 | 20-27 | 1.35-1.45 | 0.6-2 | 0.13-0.18 | 1.5-4.0 | 1.0-3.0 | .28 | .37 | | | |
| | 3-9 | 49-78 | 0-26 | 20-27 | 1.35-1.45 | 0.6-2 | 0.13-0.18 | 1.5-4.0 | 1.0-3.0 | .28 | .37 | | | |
| | 9-14 | 48-82 | 0-31 | 20-35 | 1.45-1.55 | 0.6-2 | 0.13-0.18 | 1.5-4.0 | 1.0-3.0 | .28 | .37 | | | |
| | 14-19 | 26-49 | 29-49 | 20-26 | 1.20-1.30 | 0.6-2 | 0.13-0.18 | 2.0-5.0 | 1.0-4.0 | .24 | .24 | | | |
| | 19-27 | 26-50 | 29-49 | 15-26 | 1.25-1.35 | 0.6-2 | 0.13-0.18 | 1.5-4.0 | 0.0-0.5 | .32 | .32 | | | |
| | 27-37 | 21-44 | 18-49 | 28-40 | 1.25-1.35 | 0.2-0.6 | 0.16-0.21 | 3.5-6.5 | 0.0-0.5 | .28 | .28 | | | |
| | 37-52 | 77-87 | 0-16 | 5-14 | 1.45-1.60 | 20-101 | 0.02-0.05 | 0.0-0.3 | 0.0-0.5 | .02 | .05 | | | |
| | 52-80 | 86-100 | 0-23 | 0-9 | 1.45-1.60 | 20-101 | 0.02-0.05 | 0.0-0.3 | 0.0-0.5 | .02 | .05 | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| KbC: | | | | | | | | | | | | | | |
| Kibin | 0-1 | 48-82 | 0-31 | 15-19 | 1.35-1.50 | 2-6 | 0.07-0.15 | 1.0-3.0 | 1.0-3.0 | .20 | .20 | 3 | 3 | 86 |
| | 1-3 | 48-78 | 0-28 | 20-27 | 1.35-1.45 | 0.6-2 | 0.13-0.18 | 1.5-4.0 | 1.0-3.0 | .28 | .37 | | | |
| | 3-9 | 49-78 | 0-26 | 20-27 | 1.35-1.45 | 0.6-2 | 0.13-0.18 | 1.5-4.0 | 1.0-3.0 | .28 | .37 | | | |
| | 9-14 | 48-82 | 0-31 | 20-35 | 1.45-1.55 | 0.6-2 | 0.13-0.18 | 1.5-4.0 | 1.0-3.0 | .28 | .37 | | | |
| | 14-19 | 26-49 | 29-49 | 20-26 | 1.20-1.30 | 0.6-2 | 0.13-0.18 | 2.0-5.0 | 1.0-4.0 | .24 | .24 | | | |
| | 19-27 | 26-50 | 29-49 | 15-26 | 1.25-1.35 | 0.6-2 | 0.13-0.18 | 1.5-4.0 | 0.0-0.5 | .32 | .32 | | | |
| | 27-37 | 21-44 | 18-49 | 28-40 | 1.25-1.35 | 0.2-0.6 | 0.16-0.21 | 3.5-6.5 | 0.0-0.5 | .28 | .28 | | | |
| | 37-52 | 77-87 | 0-16 | 5-14 | 1.45-1.60 | 20-101 | 0.02-0.05 | 0.0-0.3 | 0.0-0.5 | .02 | .05 | | | |
| | 52-80 | 86-100 | 0-23 | 0-9 | 1.45-1.60 | 20-101 | 0.02-0.05 | 0.0-0.3 | 0.0-0.5 | .02 | .05 | | | |
| LbF: | | | | | | | | | | | | | | |
| Lambe | 0-3 | 52-70 | 15-35 | 6-18 | 1.10-1.30 | 2-6 | 0.07-0.09 | 1.0-2.5 | 1.5-3.0 | .15 | .28 | 3 | 5 | 56 |
| | 3-8 | 38-60 | 15-35 | 10-27 | 1.15-1.35 | 0.6-2 | 0.10-0.12 | 1.5-3.0 | 1.2-2.0 | .10 | .28 | | | |
| | 8-12 | 38-60 | 15-35 | 10-27 | 1.20-1.40 | 0.6-2 | 0.08-0.10 | 1.5-3.0 | 1.0-1.5 | .10 | .24 | | | |
| | 12-22 | 38-60 | 15-35 | 10-27 | 1.20-1.40 | 0.6-2 | 0.06-0.08 | 0.8-2.0 | 0.5-1.0 | .05 | .24 | | | |
| | 22-38 | 38-65 | 15-35 | 10-27 | 1.20-1.40 | 0.6-2 | 0.04-0.06 | 0.5-1.5 | 0.2-0.8 | .05 | .24 | | | |
| | 38-65 | 38-70 | 15-35 | 10-27 | 1.25-1.45 | 0.6-2 | 0.04-0.06 | 0.3-1.0 | 0.2-0.8 | .05 | .20 | | | |
| | 65-80 | 52-75 | 15-35 | 5-18 | 1.20-1.40 | 2-6 | 0.02-0.04 | 0.1-0.3 | 0.2-0.8 | .02 | .17 | | | |
| Woodhall | 0-4 | 35-60 | 35-60 | 5-18 | 1.00-1.10 | 2-6 | 0.07-0.09 | 0.1-0.5 | 2.0-4.0 | .20 | .37 | 2 | 6 | 48 |
| | 4-11 | 30-60 | 20-65 | 18-27 | 1.15-1.25 | 0.6-2 | 0.04-0.06 | 0.2-0.8 | 1.5-2.5 | .10 | .32 | | | |
| | 11-23 | 30-60 | 20-65 | 18-27 | 1.20-1.30 | 0.6-2 | 0.04-0.06 | 0.1-0.5 | 0.5-1.5 | .10 | .37 | | | |
| | 23-32 | 30-60 | 30-65 | 5-18 | 1.25-1.35 | 2-6 | 0.03-0.05 | 0.1-0.2 | 0.2-0.8 | .10 | .43 | | | |
| | >32 | --- | --- | --- | --- | 0.00-0.2 | --- | --- | 0.0-0.0 | --- | --- | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| LeF: | | | | | | | | | | | | | | |
| Fallriver | 0-1 | 55-70 | --- | 5-14 | 0.20-1.00 | 14-86 | 0.15-0.45 | --- | 75-95 | --- | --- | 4 | 6 | 48 |
| | 1-8 | 55-70 | 15-35 | 5-14 | 1.15-1.25 | 2-6 | 0.07-0.09 | 0.5-2.0 | 0.0-1.0 | .10 | .24 | | | |
| | 8-18 | 55-70 | 15-35 | 8-18 | 1.20-1.30 | 2-6 | 0.06-0.08 | 0.2-1.0 | 0.5-2.0 | .10 | .24 | | | |
| | 18-37 | 55-70 | 15-35 | 8-18 | 1.20-1.30 | 2-6 | 0.04-0.06 | 0.1-0.5 | 0.0-1.0 | .10 | .28 | | | |
| | 37-56 | 55-75 | 15-35 | 8-18 | 1.20-1.35 | 2-6 | 0.04-0.06 | 0.0-0.3 | 0.0-1.0 | .10 | .28 | | | |
| | 56-80 | 75-85 | 10-35 | 2-12 | 1.45-1.62 | 6-20 | 0.02-0.04 | 0.0-0.2 | 0.0-0.5 | .05 | .28 | | | |
| Rock outcrop | 0-60 | --- | --- | --- | --- | 0.06-6 | --- | --- | --- | --- | --- | - | --- | --- |
| LH: | | | | | | | | | | | | | | |
| Leadville | 0-2 | --- | --- | 10-20 | 0.20-1.00 | 14-86 | 0.15-0.45 | --- | 65-85 | --- | --- | 5 | 5 | 56 |
| | 2-16 | --- | --- | 10-20 | 1.35-1.50 | 2-6 | 0.07-0.11 | 0.0-2.9 | 0.0-1.0 | .15 | .28 | | | |
| | 16-22 | --- | --- | 10-20 | 1.35-1.50 | 2-3 | 0.05-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 22-48 | --- | --- | 20-35 | 1.25-1.40 | 0.6-2 | 0.07-0.11 | 1.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| | 48-65 | --- | --- | 20-30 | 1.25-1.40 | 0.6-2 | 0.05-0.07 | 1.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| Howlett | 0-2 | --- | --- | 10-20 | 0.20-1.00 | 14-43 | 0.15-0.45 | --- | 70-95 | --- | --- | 5 | 5 | 56 |
| | 2-14 | --- | --- | 10-20 | 1.35-1.50 | 2-6 | 0.08-0.10 | 0.0-2.9 | 0.0-1.0 | .15 | .28 | | | |
| | 14-23 | --- | --- | 20-35 | 1.25-1.40 | 0.6-2 | 0.10-0.12 | 1.5-2.9 | 0.0-0.5 | .15 | .24 | | | |
| | 23-47 | --- | --- | 20-35 | 1.25-1.40 | 0.6-2 | 0.10-0.12 | 1.5-2.9 | 0.0-0.5 | .15 | .24 | | | |
| | 47-65 | --- | --- | 20-35 | 1.25-1.40 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| M: | | | | | | | | | | | | | | |
| Pits, mine | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |
| McA: | | | | | | | | | | | | | | |
| McGinty | 0-4 | 55-80 | 5-30 | 5-18 | 1.40-1.50 | 2-6 | 0.08-0.14 | 0.2-1.5 | 0.5-1.0 | .24 | .32 | 5 | 3 | 86 |
| | 4-14 | 45-80 | 5-35 | 12-18 | 1.40-1.50 | 2-6 | 0.08-0.15 | 0.2-1.5 | 0.2-1.0 | .20 | .28 | | | |
| | 14-33 | 45-75 | 5-30 | 12-18 | 1.40-1.50 | 2-6 | 0.08-0.16 | 0.2-1.5 | 0.0-0.5 | .24 | .28 | | | |
| | 33-71 | 45-75 | 5-30 | 12-18 | 1.25-1.35 | 2-6 | 0.08-0.16 | 0.2-1.5 | 0.0-0.5 | .20 | .24 | | | |
| | 71-80 | 45-75 | 5-30 | 12-18 | 1.55-1.65 | 2-6 | 0.08-0.15 | 0.2-1.5 | 0.0-0.5 | .24 | .28 | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| McB: | | | | | | | | | | | | | | |
| McGinty | 0-4 | 55-80 | 5-30 | 5-18 | 1.40-1.50 | 2-6 | 0.08-0.14 | 0.2-1.5 | 0.5-1.0 | .24 | .32 | 5 | 3 | 86 |
| | 4-14 | 45-80 | 5-35 | 12-18 | 1.40-1.50 | 2-6 | 0.08-0.15 | 0.2-1.5 | 0.5-1.0 | .20 | .28 | | | |
| | 14-33 | 45-75 | 5-30 | 12-18 | 1.40-1.50 | 2-6 | 0.08-0.16 | 0.2-1.5 | 0.0-0.5 | .24 | .28 | | | |
| | 33-71 | 45-75 | 5-30 | 12-18 | 1.25-1.35 | 2-6 | 0.08-0.16 | 0.2-1.5 | 0.0-0.5 | .20 | .24 | | | |
| | 71-80 | 45-75 | 5-30 | 12-18 | 1.55-1.65 | 2-6 | 0.08-0.15 | 0.2-1.5 | 0.0-0.5 | .24 | .28 | | | |
| McC: | | | | | | | | | | | | | | |
| McGinty | 0-4 | 55-80 | 5-30 | 5-18 | 1.40-1.50 | 2-6 | 0.08-0.14 | 0.2-1.5 | 0.5-1.0 | .24 | .32 | 5 | 3 | 86 |
| | 4-14 | 45-80 | 5-35 | 12-18 | 1.40-1.50 | 2-6 | 0.08-0.15 | 0.2-1.5 | 0.5-1.0 | .20 | .28 | | | |
| | 14-33 | 45-75 | 5-30 | 12-18 | 1.40-1.50 | 2-6 | 0.08-0.16 | 0.2-1.5 | 0.0-0.5 | .24 | .28 | | | |
| | 33-71 | 45-75 | 5-30 | 12-18 | 1.25-1.35 | 2-6 | 0.08-0.16 | 0.2-1.5 | 0.0-0.5 | .20 | .24 | | | |
| | 71-80 | 45-75 | 5-30 | 12-18 | 1.55-1.65 | 2-6 | 0.08-0.15 | 0.2-1.5 | 0.0-0.5 | .24 | .28 | | | |
| MR: | | | | | | | | | | | | | | |
| Mirror | 0-10 | --- | --- | 10-18 | 1.25-1.40 | 2-6 | 0.04-0.05 | 0.0-2.9 | 3.0-7.0 | .05 | .24 | 2 | 8 | 0 |
| | 10-25 | --- | --- | 10-18 | 1.30-1.50 | 2-6 | 0.03-0.05 | 0.0-2.9 | 0.5-3.0 | .05 | .24 | | | |
| | 25-60 | --- | --- | --- | --- | 0.01-0.2 | --- | --- | --- | --- | --- | | | |
| Rock outcrop | 0-60 | --- | --- | 0-0 | --- | 0.00-0.2 | --- | --- | --- | --- | --- | - | --- | --- |
| MsA: | | | | | | | | | | | | | | |
| Mosca | 0-6 | 80-89 | 0-10 | 8-14 | 1.50-1.60 | 6-20 | 0.05-0.08 | 0.2-1.0 | 0.2-0.8 | .05 | .05 | 2 | 2 | 134 |
| | 6-12 | 78-89 | 0-15 | 12-18 | 1.50-1.60 | 2-6 | 0.07-0.13 | 0.5-2.5 | 0.0-0.5 | .10 | .10 | | | |
| | 12-20 | 53-83 | 0-32 | 12-18 | 1.40-1.50 | 2-6 | 0.07-0.13 | 0.5-2.5 | 0.0-0.5 | .20 | .24 | | | |
| | 20-38 | 53-82 | 0-32 | 12-18 | 1.40-1.50 | 2-6 | 0.07-0.13 | 0.1-1.0 | 0.0-0.5 | .24 | .28 | | | |
| | 38-50 | 70-82 | 0-30 | 0-10 | 1.40-1.50 | 6-20 | 0.05-0.08 | 0.0-0.3 | 0.0-0.5 | .28 | .32 | | | |
| | 50-80 | 87-100 | 0-11 | 0-6 | 1.50-1.60 | 20-101 | 0.03-0.06 | 0.0-0.3 | 0.0-0.5 | .02 | .05 | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| MtA: | | | | | | | | | | | | | | |
| Mesita | 0-3 | 3-25 | 40-70 | 28-40 | 1.25-1.40 | 0.06-0.2 | 0.16-0.20 | 4.0-6.5 | 1.0-2.0 | .37 | .37 | 5 | 6 | 48 |
| | 3-10 | 10-35 | 25-50 | 28-50 | 1.15-1.40 | 0.06-0.2 | 0.09-0.16 | 5.0-7.5 | 0.8-1.5 | .24 | .24 | | | |
| | 10-21 | 10-35 | 25-50 | 28-50 | 1.15-1.40 | 0.06-0.2 | 0.09-0.16 | 5.0-8.0 | 0.5-1.0 | .24 | .24 | | | |
| | 21-38 | 10-35 | 25-50 | 28-50 | 1.15-1.40 | 0.06-0.2 | 0.09-0.16 | 4.0-6.5 | 0.0-0.5 | .28 | .28 | | | |
| | 38-46 | 25-70 | 20-45 | 12-35 | 1.15-1.40 | 0.6-2 | 0.06-0.14 | 1.0-3.0 | 0.0-0.5 | .28 | .32 | | | |
| | 46-55 | 70-85 | 10-20 | 2-15 | 1.25-1.60 | 6-20 | 0.04-0.12 | 0.0-0.3 | 0.0-0.5 | .24 | .24 | | | |
| | 55-80 | 20-50 | 20-45 | 28-45 | 1.15-1.40 | 0.06-0.2 | 0.09-0.16 | 5.0-7.5 | 0.0-0.5 | .32 | .32 | | | |
| MuC: | | | | | | | | | | | | | | |
| Morval | 0-3 | 45-65 | 20-45 | 10-20 | 1.25-1.35 | 2-6 | 0.08-0.11 | 1.0-3.0 | 1.2-3.0 | .32 | .32 | 5 | 5 | 56 |
| | 3-7 | 35-55 | 25-40 | 18-28 | 1.25-1.35 | 0.6-2 | 0.12-0.15 | 1.5-3.5 | 1.0-2.0 | .32 | .32 | | | |
| | 7-10 | 35-55 | 25-40 | 18-28 | 1.25-1.35 | 0.6-2 | 0.12-0.15 | 1.5-4.0 | 0.8-1.5 | .32 | .32 | | | |
| | 10-18 | 35-55 | 25-40 | 18-28 | 1.25-1.35 | 0.6-2 | 0.12-0.15 | 1.5-4.0 | 0.2-1.0 | .32 | .32 | | | |
| | 18-50 | 35-55 | 25-40 | 18-28 | 1.25-1.35 | 0.6-2 | 0.12-0.15 | 1.0-3.5 | 0.0-0.5 | .37 | .37 | | | |
| | 50-80 | 40-60 | 20-40 | 10-20 | 1.25-1.35 | 2-6 | 0.11-0.14 | 0.7-2.5 | 0.0-0.5 | .37 | .37 | | | |
| Uracca | 0-4 | 52-75 | 10-35 | 14-20 | 1.35-1.50 | 2-6 | 0.05-0.07 | 0.3-2.0 | 1.0-2.0 | .05 | .17 | 5 | 6 | 48 |
| | 4-11 | 52-75 | 5-30 | 20-35 | 1.25-1.40 | 0.6-2 | 0.08-0.10 | 1.0-3.0 | 1.0-1.5 | .10 | .24 | | | |
| | 11-18 | 52-75 | 5-30 | 20-35 | 1.25-1.40 | 0.6-2 | 0.08-0.10 | 0.5-2.0 | 0.5-1.0 | .05 | .28 | | | |
| | 18-24 | 60-85 | 8-30 | 5-18 | 1.35-1.60 | 2-6 | 0.01-0.04 | 0.1-1.0 | 0.0-1.0 | .05 | .20 | | | |
| | 24-52 | 60-85 | 8-30 | 5-18 | 1.35-1.60 | 2-6 | 0.01-0.04 | 0.1-0.5 | 0.0-1.0 | .05 | .20 | | | |
| | 52-80 | 60-85 | 5-30 | 5-18 | 1.35-1.60 | 2-6 | 0.01-0.04 | 0.0-0.3 | 0.0-0.0 | .05 | .24 | | | |
| MuE: | | | | | | | | | | | | | | |
| Morval | 0-3 | 45-65 | 20-45 | 10-20 | 1.25-1.35 | 2-6 | 0.08-0.11 | 1.0-3.0 | 1.2-3.0 | .32 | .32 | 5 | 5 | 56 |
| | 3-7 | 35-55 | 25-40 | 18-28 | 1.25-1.35 | 0.6-2 | 0.12-0.15 | 1.5-3.5 | 1.0-2.0 | .32 | .32 | | | |
| | 7-10 | 35-55 | 25-40 | 18-28 | 1.25-1.35 | 0.6-2 | 0.12-0.15 | 1.5-4.0 | 0.8-1.5 | .32 | .32 | | | |
| | 10-18 | 35-55 | 25-40 | 18-28 | 1.25-1.35 | 0.6-2 | 0.12-0.15 | 1.5-4.0 | 0.2-1.0 | .32 | .32 | | | |
| | 18-50 | 35-55 | 25-40 | 18-28 | 1.25-1.35 | 0.6-2 | 0.12-0.15 | 1.0-3.5 | 0.0-0.5 | .37 | .37 | | | |
| | 50-80 | 40-60 | 20-40 | 10-20 | 1.25-1.35 | 2-6 | 0.11-0.14 | 0.7-2.5 | 0.0-0.5 | .37 | .37 | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| MuE: | | | | | | | | | | | | | | |
| Uracca | 0-4 | 52-75 | 10-35 | 14-20 | 1.35-1.50 | 2-6 | 0.05-0.07 | 0.3-2.0 | 1.0-2.0 | .05 | .17 | 5 | 6 | 48 |
| | 4-11 | 52-75 | 5-30 | 20-35 | 1.25-1.40 | 0.6-2 | 0.08-0.10 | 1.0-3.0 | 1.0-1.5 | .10 | .24 | | | |
| | 11-18 | 52-75 | 5-30 | 20-35 | 1.25-1.40 | 0.6-2 | 0.08-0.10 | 0.5-2.0 | 0.5-1.0 | .05 | .28 | | | |
| | 18-24 | 60-85 | 8-30 | 5-18 | 1.35-1.60 | 2-6 | 0.01-0.04 | 0.1-1.0 | 0.0-1.0 | .05 | .20 | | | |
| | 24-52 | 60-85 | 8-30 | 5-18 | 1.35-1.60 | 2-6 | 0.01-0.04 | 0.1-0.5 | 0.0-1.0 | .05 | .20 | | | |
| | 52-80 | 60-85 | 5-30 | 5-18 | 1.35-1.60 | 2-6 | 0.01-0.04 | 0.0-0.3 | 0.0-0.0 | .05 | .24 | | | |
| PtC: | | | | | | | | | | | | | | |
| Potrio | 0-4 | 20-55 | 35-77 | 12-24 | 1.25-1.40 | 2-6 | 0.10-0.15 | 1.0-3.0 | 1.0-3.0 | .24 | .37 | 3 | 6 | 48 |
| | 4-15 | 20-52 | 35-77 | 18-26 | 1.25-1.40 | 0.6-2 | 0.11-0.17 | 1.5-4.0 | 0.5-1.5 | .24 | .37 | | | |
| | 15-24 | 20-52 | 35-77 | 18-30 | 1.25-1.40 | 0.6-2 | 0.10-0.16 | 1.5-3.5 | 0.0-0.8 | .20 | .37 | | | |
| | 24-30 | 20-52 | 35-77 | 18-26 | 1.25-1.40 | 0.6-2 | 0.08-0.13 | 1.0-3.0 | 0.0-0.5 | .17 | .37 | | | |
| | 30-36 | 20-52 | 28-50 | 15-25 | 1.25-1.40 | 2-6 | 0.07-0.12 | 0.5-2.5 | 0.0-0.5 | .17 | .43 | | | |
| | 36-42 | 52-73 | 15-35 | 12-20 | 1.25-1.50 | 2-6 | 0.02-0.06 | 0.1-1.0 | 0.0-0.5 | .10 | .32 | | | |
| | 42-80 | 0-0 | --- | 0-0 | --- | 0.01-20 | --- | 0.0-0.0 | 0.0-0.0 | .02 | .02 | | | |
| RF: | | | | | | | | | | | | | | |
| Rock outcrop | 0-60 | --- | --- | 0-0 | --- | 0.00-0.2 | --- | --- | --- | --- | --- | - | --- | --- |
| Rubble land | 0-60 | --- | --- | 0-5 | 1.70-2.35 | 20-20 | 0.00-0.10 | 0.0-2.9 | 0.0-0.1 | --- | --- | - | 8 | 0 |
| RrA: | | | | | | | | | | | | | | |
| Trinchera | 0-4 | 52-82 | 20-40 | 10-18 | 1.35-1.50 | 2-6 | 0.08-0.15 | 0.2-1.0 | 0.8-2.0 | .15 | .15 | 3 | 3 | 86 |
| | 4-15 | 35-60 | 20-40 | 18-26 | 1.25-1.50 | 0.6-2 | 0.13-0.18 | 1.0-3.5 | 0.0-1.0 | .32 | .37 | | | |
| | 15-28 | 35-55 | 20-40 | 15-26 | 1.25-1.50 | 2-6 | 0.13-0.18 | 1.5-4.0 | 0.0-0.5 | .32 | .37 | | | |
| | 28-40 | 40-55 | 20-46 | 8-18 | 1.25-1.50 | 2-6 | 0.13-0.18 | 1.0-3.5 | 0.0-0.5 | .32 | .37 | | | |
| | 40-56 | 40-55 | 20-46 | 8-18 | 1.25-1.50 | 2-6 | 0.13-0.18 | 1.5-3.5 | 0.0-0.5 | .32 | .32 | | | |
| | 56-70 | 40-70 | 20-46 | 8-18 | 1.25-1.50 | 2-6 | 0.13-0.18 | 1.0-3.0 | 0.0-0.5 | .32 | .37 | | | |
| | 70-80 | 45-70 | 20-46 | 8-18 | 1.25-1.50 | 2-6 | 0.08-0.15 | 0.5-2.0 | 0.0-0.5 | .24 | .24 | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| RrB: | | | | | | | | | | | | | | |
| Trinchera | 0-4 | 52-82 | 20-40 | 10-18 | 1.35-1.50 | 2-6 | 0.08-0.15 | 0.2-1.0 | 0.8-2.0 | .15 | .15 | 3 | 3 | 86 |
| | 4-15 | 35-60 | 20-40 | 18-26 | 1.25-1.50 | 0.6-2 | 0.13-0.18 | 1.0-3.5 | 0.0-1.0 | .32 | .37 | | | |
| | 15-28 | 35-55 | 20-40 | 15-26 | 1.25-1.50 | 2-6 | 0.13-0.18 | 1.5-4.0 | 0.0-0.5 | .32 | .37 | | | |
| | 28-40 | 40-55 | 20-46 | 8-18 | 1.25-1.50 | 2-6 | 0.13-0.18 | 1.0-3.5 | 0.0-0.5 | .32 | .37 | | | |
| | 40-56 | 40-55 | 20-46 | 8-18 | 1.25-1.50 | 2-6 | 0.13-0.18 | 1.5-3.5 | 0.0-0.5 | .32 | .32 | | | |
| | 56-70 | 40-70 | 20-46 | 8-18 | 1.25-1.50 | 2-6 | 0.13-0.18 | 1.0-3.0 | 0.0-0.5 | .32 | .37 | | | |
| | 70-80 | 45-70 | 20-46 | 8-18 | 1.25-1.50 | 2-6 | 0.08-0.15 | 0.5-2.0 | 0.0-0.5 | .24 | .24 | | | |
| RrD: | | | | | | | | | | | | | | |
| Trinchera | 0-4 | 52-82 | 20-40 | 10-18 | 1.35-1.50 | 2-6 | 0.08-0.15 | 0.2-1.0 | 0.8-2.0 | .15 | .15 | 3 | 3 | 86 |
| | 4-15 | 35-60 | 20-40 | 18-26 | 1.25-1.50 | 0.6-2 | 0.13-0.18 | 1.0-3.5 | 0.0-1.0 | .32 | .37 | | | |
| | 15-28 | 35-55 | 20-40 | 15-26 | 1.25-1.50 | 2-6 | 0.13-0.18 | 1.5-4.0 | 0.0-0.5 | .32 | .37 | | | |
| | 28-40 | 40-55 | 20-46 | 8-18 | 1.25-1.50 | 2-6 | 0.13-0.18 | 1.0-3.5 | 0.0-0.5 | .32 | .37 | | | |
| | 40-56 | 40-55 | 20-46 | 8-18 | 1.25-1.50 | 2-6 | 0.13-0.18 | 1.5-3.5 | 0.0-0.5 | .32 | .32 | | | |
| | 56-70 | 40-70 | 20-46 | 8-18 | 1.25-1.50 | 2-6 | 0.13-0.18 | 1.0-3.0 | 0.0-0.5 | .32 | .37 | | | |
| | 70-80 | 45-70 | 20-46 | 8-18 | 1.25-1.50 | 2-6 | 0.08-0.15 | 0.5-2.0 | 0.0-0.5 | .24 | .24 | | | |
| ShA: | | | | | | | | | | | | | | |
| Shawa | 0-7 | 40-60 | 20-45 | 10-18 | 1.10-1.30 | 2-6 | 0.14-0.16 | 0.5-4.0 | 1.5-3.0 | .24 | .24 | 5 | 3 | 86 |
| | 7-28 | 20-52 | 28-50 | 18-26 | 1.10-1.30 | 0.6-2 | 0.14-0.16 | 1.0-6.0 | 1.0-2.0 | .32 | .32 | | | |
| | 28-42 | 20-52 | 28-50 | 18-26 | 1.10-1.30 | 0.6-2 | 0.14-0.16 | 1.0-6.0 | 1.0-2.0 | .32 | .32 | | | |
| | 42-80 | 40-70 | 28-50 | 12-19 | 1.10-1.30 | 2-6 | 0.14-0.16 | 1.0-6.0 | 0.5-1.5 | .32 | .32 | | | |
| ShC: | | | | | | | | | | | | | | |
| Shawa | 0-7 | 40-60 | 20-45 | 10-18 | 1.10-1.30 | 2-6 | 0.14-0.16 | 0.5-4.0 | 1.5-3.0 | .24 | .24 | 5 | 3 | 86 |
| | 7-28 | 20-52 | 28-50 | 18-26 | 1.10-1.30 | 0.6-2 | 0.14-0.16 | 1.0-6.0 | 1.0-2.0 | .32 | .32 | | | |
| | 28-42 | 20-52 | 28-50 | 18-26 | 1.10-1.30 | 0.6-2 | 0.14-0.16 | 1.0-6.0 | 1.0-2.0 | .32 | .32 | | | |
| | 42-80 | 40-70 | 28-50 | 12-19 | 1.10-1.30 | 2-6 | 0.14-0.16 | 1.0-6.0 | 0.5-1.5 | .32 | .32 | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| SL: | | | | | | | | | | | | | | |
| Scandard | 0-1 | --- | --- | 10-20 | 0.20-1.00 | 14-86 | 0.15-0.45 | --- | 70-95 | --- | --- | 2 | 5 | 56 |
| | 1-7 | --- | --- | 10-20 | 1.35-1.50 | 2-6 | 0.07-0.11 | 0.0-2.9 | 1.0-3.0 | .15 | .24 | | | |
| | 7-11 | --- | --- | 10-20 | 1.35-1.50 | 2-6 | 0.05-0.07 | 0.0-2.9 | 0.5-1.0 | .10 | .28 | | | |
| | 11-18 | --- | --- | 20-35 | 1.25-1.40 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| | 18-25 | --- | --- | 20-35 | 1.25-1.40 | 0.6-2 | 0.07-0.09 | 0.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| | 25-27 | --- | --- | --- | --- | 0.06-0.6 | --- | --- | --- | --- | --- | | | |
| | 27-60 | --- | --- | --- | --- | 0.00-0.2 | --- | --- | --- | --- | --- | | | |
| Leadville | 0-2 | --- | --- | 10-20 | 0.20-1.00 | 14-86 | 0.15-0.45 | --- | 65-85 | --- | --- | 5 | 5 | 56 |
| | 2-16 | --- | --- | 10-20 | 1.35-1.50 | 2-6 | 0.07-0.11 | 0.0-2.9 | 0.0-1.0 | .15 | .28 | | | |
| | 16-22 | --- | --- | 10-20 | 1.35-1.50 | 2-3 | 0.05-0.07 | 0.0-2.9 | 0.0-0.5 | .10 | .32 | | | |
| | 22-48 | --- | --- | 20-35 | 1.25-1.40 | 0.6-2 | 0.07-0.11 | 1.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| | 48-65 | --- | --- | 20-30 | 1.25-1.40 | 0.6-2 | 0.05-0.07 | 1.0-2.9 | 0.0-0.5 | .10 | .24 | | | |
| Rock outcrop | 0-60 | --- | --- | 0-0 | --- | 0.00-0.2 | --- | --- | --- | --- | --- | - | --- | --- |
| SpD: | | | | | | | | | | | | | | |
| Sanpedro | 0-2 | 20-40 | 40-70 | 12-22 | 1.25-1.40 | 2-6 | 0.07-0.12 | 0.5-2.5 | 2.0-10 | .10 | .28 | 1 | 7 | 38 |
| | 2-7 | 25-52 | 40-65 | 18-26 | 1.25-1.40 | 0.6-2 | 0.06-0.11 | 0.5-3.0 | 1.5-3.0 | .10 | .32 | | | |
| | 7-11 | 25-52 | 40-65 | 18-26 | 1.25-1.40 | 0.6-2 | 0.05-0.09 | 0.5-2.5 | 1.2-2.0 | .10 | .37 | | | |
| | 11-17 | 40-52 | 28-60 | 10-22 | 1.25-1.50 | 2-6 | 0.03-0.08 | 0.2-1.0 | 1.0-1.5 | .05 | .37 | | | |
| | 17-80 | 0-0 | --- | 0-0 | --- | 0.01-20 | --- | 0.0-0.0 | 0.0-0.0 | .02 | .02 | | | |
| Potrio | 0-4 | 20-55 | 35-77 | 12-24 | 1.25-1.40 | 2-6 | 0.10-0.15 | 1.0-3.0 | 1.0-3.0 | .24 | .37 | 3 | 6 | 48 |
| | 4-15 | 20-52 | 35-77 | 18-27 | 1.25-1.40 | 0.6-2 | 0.11-0.17 | 1.5-4.0 | 0.5-1.5 | .24 | .37 | | | |
| | 15-24 | 20-52 | 35-77 | 18-30 | 1.25-1.40 | 0.6-2 | 0.10-0.16 | 1.5-3.5 | 0.0-0.8 | .20 | .37 | | | |
| | 24-30 | 20-52 | 35-77 | 18-26 | 1.25-1.40 | 0.6-2 | 0.08-0.13 | 1.0-3.0 | 0.0-0.5 | .17 | .37 | | | |
| | 30-36 | 20-52 | 28-50 | 15-26 | 1.25-1.40 | 2-6 | 0.07-0.12 | 0.5-2.5 | 0.0-0.5 | .17 | .43 | | | |
| | 36-42 | 52-73 | 15-35 | 12-20 | 1.25-1.50 | 2-6 | 0.02-0.06 | 0.1-1.0 | 0.0-0.5 | .10 | .32 | | | |
| | 42-80 | 0-0 | --- | 0-0 | --- | 0.01-20 | --- | 0.0-0.0 | 0.0-0.0 | .02 | .02 | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| SpD: | | | | | | | | | | | | | | |
| Rock outcrop | 0-60 | --- | --- | --- | --- | 0.06-6 | --- | --- | --- | --- | --- | - | --- | --- |
| SpF: | | | | | | | | | | | | | | |
| Sanpedro | 0-2 | 20-40 | 40-70 | 12-22 | 1.25-1.40 | 2-6 | 0.07-0.12 | 0.5-2.5 | 2.0-10 | .10 | .28 | 1 | 7 | 38 |
| | 2-7 | 25-52 | 40-65 | 18-26 | 1.25-1.40 | 0.6-2 | 0.06-0.11 | 0.5-3.0 | 1.5-3.0 | .10 | .32 | | | |
| | 7-11 | 25-52 | 40-65 | 18-26 | 1.25-1.40 | 0.6-2 | 0.05-0.09 | 0.5-2.5 | 1.2-2.0 | .10 | .37 | | | |
| | 11-17 | 40-52 | 28-60 | 10-22 | 1.25-1.50 | 2-6 | 0.03-0.08 | 0.2-1.0 | 1.0-1.5 | .05 | .37 | | | |
| | 17-80 | 0-0 | --- | 0-0 | --- | 0.01-20 | --- | 0.0-0.0 | 0.0-0.0 | .02 | .02 | | | |
| Potrio | 0-4 | 20-55 | 35-77 | 12-24 | 1.25-1.40 | 2-6 | 0.10-0.15 | 1.0-3.0 | 1.0-3.0 | .24 | .37 | 3 | 6 | 48 |
| | 4-15 | 20-52 | 35-77 | 18-26 | 1.25-1.40 | 0.6-2 | 0.11-0.17 | 1.5-4.0 | 0.5-1.5 | .24 | .37 | | | |
| | 15-24 | 20-52 | 35-77 | 18-30 | 1.25-1.40 | 0.6-2 | 0.10-0.16 | 1.5-3.5 | 0.0-0.8 | .20 | .37 | | | |
| | 24-30 | 20-52 | 35-77 | 18-26 | 1.25-1.40 | 0.6-2 | 0.08-0.13 | 1.0-3.0 | 0.0-0.5 | .17 | .37 | | | |
| | 30-36 | 20-52 | 28-50 | 15-26 | 1.25-1.40 | 2-6 | 0.07-0.12 | 0.5-2.5 | 0.0-0.5 | .17 | .43 | | | |
| | 36-42 | 52-73 | 15-35 | 12-20 | 1.25-1.50 | 2-6 | 0.02-0.06 | 0.1-1.0 | 0.0-0.5 | .10 | .32 | | | |
| | 42-80 | 0-0 | --- | 0-0 | --- | 0.01-20 | --- | 0.0-0.0 | 0.0-0.0 | .02 | .02 | | | |
| Rock outcrop | 0-60 | --- | --- | --- | --- | 0.06-6 | --- | --- | --- | --- | --- | - | --- | --- |
| StB: | | | | | | | | | | | | | | |
| Stunner | 0-4 | 30-50 | 30-48 | 10-26 | 1.25-1.40 | 2-6 | 0.12-0.18 | 1.0-3.0 | 0.5-1.0 | .28 | .32 | 3 | 5 | 56 |
| | 4-11 | 20-40 | 25-48 | 21-35 | 1.25-1.40 | 0.2-0.6 | 0.13-0.20 | 2.5-5.5 | 0.2-1.0 | .32 | .37 | | | |
| | 11-20 | 20-40 | 25-48 | 21-35 | 1.25-1.40 | 0.2-0.6 | 0.13-0.20 | 2.0-4.5 | 0.0-0.5 | .32 | .37 | | | |
| | 20-25 | 20-50 | 25-48 | 18-35 | 1.25-1.40 | 0.6-2 | 0.12-0.19 | 1.0-3.0 | 0.0-0.5 | .32 | .37 | | | |
| | 25-38 | 20-50 | 25-48 | 18-35 | 1.25-1.40 | 0.6-2 | 0.12-0.19 | 1.0-3.5 | 0.0-0.5 | .32 | .37 | | | |
| | 38-47 | 20-50 | 15-48 | 18-35 | 1.25-1.40 | 0.6-2 | 0.12-0.18 | 1.5-3.5 | 0.0-0.5 | .28 | .37 | | | |
| | 47-77 | 45-75 | 0-40 | 18-35 | 1.25-1.60 | 0.6-2 | 0.12-0.18 | 1.0-3.5 | 0.0-0.5 | .20 | .24 | | | |
| | 77-80 | 85-100 | 0-15 | 0-12 | 1.35-1.60 | 20-101 | 0.03-0.06 | 0.0-0.3 | 0.0-0.5 | .02 | .05 | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| StC: | | | | | | | | | | | | | | |
| Stunner | 0-4 | 30-50 | 30-48 | 10-26 | 1.25-1.40 | 2-6 | 0.12-0.18 | 1.0-3.0 | 0.5-1.0 | .28 | .32 | 3 | 5 | 56 |
| | 4-11 | 20-40 | 25-48 | 21-35 | 1.25-1.40 | 0.2-0.6 | 0.13-0.20 | 2.5-5.5 | 0.2-1.0 | .32 | .37 | | | |
| | 11-20 | 20-40 | 25-48 | 21-35 | 1.25-1.40 | 0.2-0.6 | 0.13-0.20 | 2.0-4.5 | 0.0-0.5 | .32 | .37 | | | |
| | 20-25 | 20-50 | 25-48 | 18-35 | 1.25-1.40 | 0.6-2 | 0.12-0.19 | 1.0-3.0 | 0.0-0.5 | .32 | .37 | | | |
| | 25-38 | 20-50 | 25-48 | 18-35 | 1.25-1.40 | 0.6-2 | 0.12-0.19 | 1.0-3.5 | 0.0-0.5 | .32 | .37 | | | |
| | 38-47 | 20-50 | 15-48 | 18-35 | 1.25-1.40 | 0.6-2 | 0.12-0.18 | 1.5-3.5 | 0.0-0.5 | .28 | .37 | | | |
| | 47-77 | 45-75 | 0-40 | 18-35 | 1.25-1.60 | 0.6-2 | 0.12-0.18 | 1.0-3.5 | 0.0-0.5 | .20 | .24 | | | |
| | 77-80 | 85-100 | 0-15 | 0-12 | 1.35-1.60 | 20-101 | 0.03-0.06 | 0.0-0.3 | 0.0-0.5 | .02 | .05 | | | |
| SzF: | | | | | | | | | | | | | | |
| Seitz | 0-1 | 52-75 | --- | 8-18 | 0.20-1.00 | 14-86 | 0.15-0.45 | --- | 75-95 | --- | --- | 4 | 6 | 48 |
| | 1-12 | 52-75 | 15-35 | 8-18 | 1.10-1.30 | 2-6 | 0.06-0.08 | 0.6-2.0 | 1.0-2.0 | .10 | .28 | | | |
| | 12-16 | 35-60 | 0-40 | 28-50 | 1.00-1.15 | 0.06-0.2 | 0.08-0.10 | 1.0-2.5 | 0.5-1.5 | .10 | .32 | | | |
| | 16-18 | 52-75 | 15-35 | 8-18 | 0.20-1.00 | 2-6 | 0.06-0.08 | 0.6-2.0 | 1.0-2.0 | .10 | .28 | | | |
| | 18-40 | 20-45 | 20-40 | 28-50 | 1.00-1.15 | 0.06-0.2 | 0.10-0.11 | 2.0-4.0 | 0.2-1.0 | .10 | .28 | | | |
| | 40-55 | 35-60 | 15-35 | 20-35 | 1.05-1.20 | 0.2-2 | 0.05-0.06 | 0.5-1.5 | 0.0-0.5 | .05 | .24 | | | |
| | 55-80 | 52-75 | 15-35 | 10-20 | 1.20-1.40 | 2-6 | 0.03-0.04 | 0.2-1.0 | 0.0-0.5 | .05 | .24 | | | |
| Tolvar | 0-2 | 52-75 | --- | 8-15 | 0.20-1.00 | 14-86 | 0.15-0.45 | --- | 75-95 | --- | --- | 4 | 5 | 56 |
| | 2-8 | 52-75 | 15-35 | 8-15 | 1.10-1.30 | 2-6 | 0.06-0.08 | 0.8-2.0 | 1.0-2.0 | .15 | .32 | | | |
| | 8-16 | 52-70 | 15-35 | 12-18 | 1.15-1.35 | 2-6 | 0.06-0.08 | 0.7-2.0 | 0.8-1.5 | .15 | .28 | | | |
| | 16-20 | 52-70 | --- | 12-18 | 1.15-1.35 | 2-6 | 0.06-0.08 | 0.7-2.0 | 0.8-1.5 | .10 | .28 | | | |
| | 20-22 | 40-70 | 15-35 | 20-35 | 1.15-1.35 | 0.6-2 | 0.05-0.07 | 0.6-2.0 | 0.2-1.0 | .10 | .20 | | | |
| | 22-39 | 40-70 | 15-40 | 20-35 | 1.20-1.40 | 0.6-2 | 0.08-0.10 | 1.0-2.5 | 0.0-0.5 | .05 | .20 | | | |
| | 39-80 | 52-75 | 12-30 | 12-19 | 1.20-1.40 | 2-6 | 0.04-0.06 | 0.5-1.8 | 0.0-0.5 | .05 | .24 | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| TlD: | | | | | | | | | | | | | | |
| Tolvar | 0-2 | 52-75 | --- | 8-15 | 0.20-1.00 | 14-86 | 0.15-0.45 | --- | 75-95 | --- | --- | 4 | 5 | 56 |
| | 2-8 | 52-75 | 15-35 | 8-15 | 1.10-1.30 | 2-6 | 0.06-0.08 | 0.8-2.0 | 1.0-2.0 | .15 | .32 | | | |
| | 8-16 | 52-70 | 15-35 | 12-18 | 1.15-1.35 | 2-6 | 0.06-0.08 | 0.7-2.0 | 0.8-1.5 | .15 | .28 | | | |
| | 16-20 | 52-70 | --- | 12-18 | 1.15-1.35 | 2-6 | 0.06-0.08 | 0.7-2.0 | 0.8-1.5 | .10 | .28 | | | |
| | 20-22 | 52-70 | 15-35 | 20-35 | 1.15-1.35 | 0.6-2 | 0.05-0.07 | 0.6-2.0 | 0.2-1.0 | .10 | .20 | | | |
| | 22-39 | 40-70 | 15-40 | 20-35 | 1.20-1.40 | 0.6-2 | 0.08-0.10 | 1.0-2.5 | 0.0-0.5 | .05 | .20 | | | |
| | 39-80 | 52-75 | 12-30 | 12-19 | 1.20-1.40 | 2-6 | 0.04-0.06 | 0.5-1.8 | 0.0-0.5 | .05 | .24 | | | |
| Laveta | 0-1 | 35-60 | --- | 3-12 | 0.20-1.00 | 14-86 | 0.15-0.45 | --- | 75-95 | --- | --- | 2 | 5 | 56 |
| | 1-9 | 35-60 | 25-60 | 3-12 | 1.10-1.30 | 2-6 | 0.09-0.11 | 0.0-0.5 | 1.0-2.0 | .20 | .10 | | | |
| | 9-17 | 35-60 | 25-60 | 5-18 | 1.15-1.35 | 2-6 | 0.08-0.10 | 0.2-1.0 | 0.2-1.0 | .28 | .15 | | | |
| | 17-26 | 35-60 | 25-60 | 3-12 | 1.20-1.40 | 2-6 | 0.04-0.06 | 0.0-0.3 | 0.0-0.5 | .32 | .05 | | | |
| | 26-80 | --- | --- | --- | --- | 0.00-0.2 | --- | --- | --- | --- | --- | | | |
| TlF: | | | | | | | | | | | | | | |
| Tolvar | 0-2 | 52-75 | --- | 8-15 | 0.20-1.00 | 14-86 | 0.15-0.45 | --- | 75-95 | --- | --- | 4 | 5 | 56 |
| | 2-8 | 52-75 | 15-35 | 8-15 | 1.10-1.30 | 2-6 | 0.06-0.08 | 0.8-2.0 | 1.0-2.0 | .15 | .32 | | | |
| | 8-16 | 52-70 | 15-35 | 12-18 | 1.15-1.35 | 2-6 | 0.06-0.08 | 0.7-2.0 | 0.8-1.5 | .15 | .28 | | | |
| | 16-20 | 52-70 | --- | 12-18 | 1.15-1.35 | 2-6 | 0.06-0.08 | 0.7-2.0 | 0.8-1.5 | .10 | .28 | | | |
| | 20-22 | 52-70 | 15-35 | 20-35 | 1.15-1.35 | 0.6-2 | 0.05-0.07 | 0.6-2.0 | 0.2-1.0 | .10 | .20 | | | |
| | 22-39 | 40-70 | 15-40 | 20-35 | 1.20-1.40 | 0.6-2 | 0.08-0.10 | 1.0-2.5 | 0.0-0.5 | .05 | .20 | | | |
| | 39-80 | 52-75 | 12-30 | 12-19 | 1.20-1.40 | 2-6 | 0.04-0.06 | 0.5-1.8 | 0.0-0.5 | .05 | .24 | | | |
| Laveta | 0-1 | 35-60 | --- | 3-12 | 0.20-1.00 | 14-86 | 0.15-0.45 | --- | 75-95 | --- | --- | 2 | 5 | 56 |
| | 1-9 | 35-60 | 25-60 | 3-12 | 1.10-1.30 | 2-6 | 0.09-0.11 | 0.0-0.5 | 1.0-2.0 | .20 | .10 | | | |
| | 9-17 | 35-60 | 25-60 | 5-18 | 1.15-1.35 | 2-6 | 0.08-0.10 | 0.2-1.0 | 0.2-1.0 | .28 | .15 | | | |
| | 17-26 | 35-60 | 25-60 | 3-12 | 1.20-1.40 | 2-6 | 0.04-0.06 | 0.0-0.3 | 0.0-0.5 | .32 | .05 | | | |
| | 26-80 | --- | --- | --- | --- | 0.00-0.2 | --- | --- | --- | --- | --- | | | |
| Rock outcrop | 0-60 | --- | --- | --- | --- | 0.06-6 | --- | --- | --- | --- | --- | - | --- | --- |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| ToF: | | | | | | | | | | | | | | |
| Tolvar | 0-2 | 52-75 | --- | 8-15 | 0.20-1.00 | 14-86 | 0.15-0.45 | --- | 75-95 | --- | --- | 4 | 5 | 56 |
| | 2-8 | 52-75 | 15-35 | 8-15 | 1.10-1.30 | 2-6 | 0.06-0.08 | 0.8-2.0 | 1.0-2.0 | .15 | .32 | | | |
| | 8-16 | 52-70 | 15-35 | 12-18 | 1.15-1.35 | 2-6 | 0.06-0.08 | 0.7-2.0 | 0.8-1.5 | .15 | .28 | | | |
| | 16-20 | 52-70 | --- | 12-18 | 1.15-1.35 | 2-6 | 0.06-0.08 | 0.7-2.0 | 0.8-1.5 | .10 | .28 | | | |
| | 20-22 | 52-70 | 15-40 | 20-35 | 1.15-1.35 | 0.6-2 | 0.05-0.07 | 0.6-2.0 | 0.2-1.0 | .10 | .20 | | | |
| | 22-39 | 40-70 | 15-40 | 20-35 | 1.20-1.40 | 0.6-2 | 0.08-0.10 | 1.0-2.5 | 0.0-0.5 | .05 | .20 | | | |
| | 39-80 | 52-75 | 12-30 | 12-19 | 1.20-1.40 | 2-6 | 0.04-0.06 | 0.5-1.8 | 0.0-0.5 | .05 | .24 | | | |
| TvD: | | | | | | | | | | | | | | |
| Travelers | 0-3 | 45-75 | 20-50 | 6-18 | 1.25-1.40 | 2-6 | 0.09-0.14 | 0.1-1.0 | 0.5-1.5 | .20 | .37 | 1 | 5 | 56 |
| | 3-7 | 45-75 | 15-50 | 6-18 | 1.25-1.50 | 2-6 | 0.08-0.13 | 0.1-0.5 | 0.2-0.8 | .20 | .43 | | | |
| | 7-13 | 45-75 | 15-50 | 6-18 | 1.25-1.50 | 2-6 | 0.07-0.12 | 0.0-0.3 | 0.0-0.2 | .17 | .43 | | | |
| | 13-80 | 0-0 | --- | 0-0 | --- | 0.01-20 | --- | 0.0-0.0 | 0.0-0.0 | .02 | .02 | | | |
| Rock outcrop | 0-60 | --- | --- | --- | --- | 0.06-6 | --- | --- | --- | --- | --- | - | --- | --- |
| TvF: | | | | | | | | | | | | | | |
| Travelers | 0-3 | 45-75 | 20-50 | 6-18 | 1.25-1.40 | 2-6 | 0.09-0.14 | 0.1-1.0 | 0.5-1.5 | .20 | .37 | 1 | 5 | 56 |
| | 3-7 | 45-75 | 15-50 | 6-18 | 1.25-1.50 | 2-6 | 0.08-0.13 | 0.1-0.5 | 0.2-0.8 | .20 | .43 | | | |
| | 7-13 | 45-75 | 15-50 | 6-18 | 1.25-1.50 | 2-6 | 0.07-0.12 | 0.0-0.3 | 0.0-0.2 | .17 | .43 | | | |
| | 13-80 | 0-0 | --- | 0-0 | --- | 0.01-20 | --- | 0.0-0.0 | 0.0-0.0 | .02 | .02 | | | |
| Rock outcrop | 0-60 | --- | --- | --- | --- | 0.06-6 | --- | --- | --- | --- | --- | - | --- | --- |
| UmF: | | | | | | | | | | | | | | |
| Uracca | 0-4 | 52-75 | 10-35 | 14-20 | 1.35-1.50 | 2-6 | 0.05-0.07 | 0.3-2.0 | 1.0-2.0 | .05 | .17 | 5 | 6 | 48 |
| | 4-11 | 52-75 | 5-30 | 20-35 | 1.25-1.40 | 0.6-2 | 0.08-0.10 | 1.0-3.0 | 1.0-1.5 | .10 | .24 | | | |
| | 11-18 | 52-75 | 5-30 | 20-35 | 1.25-1.40 | 0.6-2 | 0.08-0.10 | 0.5-2.0 | 0.5-1.0 | .05 | .28 | | | |
| | 18-24 | 60-85 | 8-30 | 5-18 | 1.35-1.60 | 2-6 | 0.01-0.04 | 0.1-1.0 | 0.0-1.0 | .05 | .20 | | | |
| | 24-52 | 60-85 | 8-30 | 5-18 | 1.35-1.60 | 2-6 | 0.01-0.04 | 0.1-0.5 | 0.0-1.0 | .05 | .20 | | | |
| | 52-80 | 60-85 | 8-30 | 5-18 | 1.35-1.60 | 2-6 | 0.01-0.04 | 0.0-0.3 | 0.0-0.0 | .05 | .24 | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| UmF: | | | | | | | | | | | | | | |
| Morval | 0-3 | 45-65 | 20-45 | 10-20 | 1.25-1.35 | 2-6 | 0.08-0.11 | 1.0-3.0 | 1.2-3.0 | .32 | .32 | 5 | 5 | 56 |
| | 3-7 | 35-55 | 25-40 | 18-28 | 1.25-1.35 | 0.6-2 | 0.12-0.15 | 1.5-3.5 | 1.0-2.0 | .32 | .32 | | | |
| | 7-10 | 35-55 | 25-40 | 18-28 | 1.25-1.35 | 0.6-2 | 0.12-0.15 | 1.5-4.0 | 0.8-1.5 | .32 | .32 | | | |
| | 10-18 | 35-55 | 25-40 | 18-28 | 1.25-1.35 | 0.6-2 | 0.12-0.15 | 1.5-4.0 | 0.2-1.0 | .32 | .32 | | | |
| | 18-50 | 35-55 | 25-40 | 18-28 | 1.25-1.35 | 0.6-2 | 0.12-0.15 | 1.0-3.5 | 0.0-0.5 | .37 | .37 | | | |
| | 50-80 | 40-60 | 20-40 | 10-20 | 1.25-1.35 | 2-6 | 0.11-0.14 | 0.7-2.5 | 0.0-0.5 | .37 | .37 | | | |
| UrF: | | | | | | | | | | | | | | |
| Uracca | 0-4 | 52-75 | 10-35 | 14-20 | 1.35-1.50 | 2-6 | 0.05-0.07 | 0.3-2.0 | 1.0-2.0 | .05 | .17 | 5 | 6 | 48 |
| | 4-11 | 52-75 | 5-30 | 20-35 | 1.25-1.40 | 0.6-2 | 0.08-0.10 | 1.0-3.0 | 1.0-1.5 | .10 | .24 | | | |
| | 11-18 | 52-75 | 5-30 | 20-35 | 1.25-1.40 | 0.6-2 | 0.08-0.10 | 0.5-2.0 | 0.5-1.0 | .05 | .28 | | | |
| | 18-24 | 60-85 | 8-30 | 5-18 | 1.35-1.60 | 2-6 | 0.01-0.04 | 0.1-1.0 | 0.0-1.0 | .05 | .20 | | | |
| | 24-52 | 60-85 | 8-30 | 5-18 | 1.35-1.60 | 2-6 | 0.01-0.04 | 0.1-0.5 | 0.0-1.0 | .05 | .20 | | | |
| | 52-80 | 60-85 | 5-30 | 5-18 | 1.35-1.60 | 2-6 | 0.01-0.04 | 0.0-0.3 | 0.0-0.0 | .05 | .24 | | | |
| Culebra | 0-3 | 52-75 | 10-30 | 8-18 | 1.35-1.55 | 2-6 | 0.04-0.07 | 0.2-1.5 | 0.5-1.0 | .10 | .24 | 1 | 6 | 48 |
| | 3-11 | 65-90 | 5-30 | 5-18 | 1.35-1.55 | 2-6 | 0.04-0.06 | 0.1-1.0 | 0.0-0.5 | .05 | .20 | | | |
| | 11-80 | 0-0 | 0-0 | 0-0 | --- | 0.01-20 | --- | 0.0-0.0 | 0.0-0.0 | .02 | .02 | | | |
| VeA: | | | | | | | | | | | | | | |
| Ventero | 0-8 | 10-20 | --- | 28-35 | 0.20-1.00 | 14-86 | 0.15-0.45 | 0.0-1.0 | 75-95 | --- | --- | 1 | 8 | 0 |
| | 8-23 | 10-20 | --- | 28-35 | 0.20-1.00 | 14-86 | 0.15-0.45 | 0.0-1.0 | 75-95 | --- | --- | | | |
| | 23-38 | 10-20 | 0-70 | 28-35 | 1.15-1.30 | 0.2-0.6 | 0.17-0.21 | 3.0-5.5 | 1.0-2.0 | .37 | .37 | | | |
| | 38-44 | 10-20 | --- | 28-35 | 0.20-1.00 | 14-86 | 0.15-0.45 | 0.0-1.0 | 75-95 | --- | --- | | | |
| | 44-60 | 50-70 | 0-50 | 5-20 | 1.25-1.50 | 2-6 | 0.13-0.17 | 1.0-3.0 | 1.0-2.0 | .28 | .28 | | | |

Table 21.--Physical soil properties--continued

| Map symbol and soil name | Depth | Sand | Silt | Clay | Moist bulk density | Permeability (Ksat) | Available water capacity | Linear extensibility | Organic matter | Erosion factors | | | Wind erodibility group | Wind erodibility index |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Kw | Kf | T | | |
| | In. | Pct. | Pct. | Pct. | g/cc | In./hr. | In./in. | Pct. | Pct. | | | | | |
| VgA: | | | | | | | | | | | | | | |
| Vastine | 0-3 | 30-50 | 30-50 | 15-26 | 1.25-1.40 | 0.6-2 | 0.13-0.18 | 1.5-4.0 | 1.0-4.0 | .24 | .24 | 3 | 6 | 48 |
| | 3-13 | 30-50 | 30-50 | 15-26 | 1.25-1.40 | 0.6-2 | 0.13-0.18 | 1.5-4.0 | 1.0-2.0 | .37 | .37 | | | |
| | 13-21 | 30-50 | 30-46 | 23-32 | 1.25-1.40 | 0.2-0.6 | 0.13-0.20 | 3.0-6.0 | 0.5-1.0 | .32 | .32 | | | |
| | 21-27 | 20-35 | 37-46 | 23-32 | 1.25-1.40 | 0.6-2 | 0.13-0.20 | 2.5-5.0 | 0.0-1.0 | .37 | .37 | | | |
| | 27-58 | 70-100 | 0-30 | 0-15 | 1.45-1.60 | 20-101 | 0.05-0.08 | 0.0-0.3 | 0.0-1.0 | .15 | .15 | | | |
| | 58-80 | 70-100 | 0-30 | 0-15 | 1.45-1.60 | 20-101 | 0.04-0.07 | 0.0-0.3 | 0.0-1.0 | .10 | .10 | | | |
| | 80-90 | 85-100 | 0-15 | 0-10 | 1.45-1.60 | 20-101 | 0.04-0.07 | 0.0-0.3 | 0.0-1.0 | .02 | .10 | | | |
| Gerrard | 0-3 | 35-70 | 10-55 | 12-20 | 1.35-1.50 | 2-6 | 0.08-0.13 | 0.2-2.0 | 1.0-4.0 | .17 | .17 | 3 | 3 | 86 |
| | 3-15 | 35-58 | 10-55 | 28-40 | 1.25-1.50 | 0.2-0.6 | 0.13-0.21 | 2.5-5.0 | 1.0-2.0 | .20 | .20 | | | |
| | 15-27 | 70-100 | 0-30 | 0-15 | 1.45-1.60 | 6-20 | 0.05-0.08 | 0.0-0.3 | 0.5-1.0 | .28 | .28 | | | |
| | 27-48 | 70-100 | 0-30 | 0-15 | 1.45-1.60 | 20-101 | 0.05-0.08 | 0.0-0.3 | 0.0-1.0 | .15 | .15 | | | |
| | 48-80 | 70-100 | 0-30 | 0-15 | 1.45-1.60 | 6-20 | 0.02-0.05 | 0.0-0.3 | 0.0-1.0 | .20 | .02 | | | |
| W: | | | | | | | | | | | | | | |
| Water | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | - | --- | --- |

## Table 22.--Chemical properties of the soils

(Absence of an entry indicates that data were not estimated.)

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| AmC: | | | | | | | |
| Amalia | 0-5 | 5.5-15 | 6.6-7.8 | 0-5 | 0 | 0.0-1.0 | 0 |
| | 5-11 | 7.6-25 | 7.4-8.4 | 1-5 | 0 | 0.0-1.0 | 0 |
| | 11-25 | 4.1-20 | 7.4-8.4 | 5-17 | 0 | 0.0-1.0 | 0 |
| | 25-39 | 1.8-7.1 | 7.9-8.4 | 15-30 | 0 | 0.0-1.0 | 0 |
| | 39-80 | 3.3-8.6 | 7.9-8.4 | 15-30 | 0 | 0.0-1.0 | 0 |
| AmE: | | | | | | | |
| Amalia | 0-5 | 5.5-15 | 6.6-7.8 | 0-5 | 0 | 0.0-1.0 | 0 |
| | 5-11 | 7.6-25 | 7.4-8.4 | 1-5 | 0 | 0.0-1.0 | 0 |
| | 11-25 | 4.1-20 | 7.4-8.4 | 5-17 | 0 | 0.0-1.0 | 0 |
| | 25-39 | 1.8-7.1 | 7.9-8.4 | 15-30 | 0 | 0.0-1.0 | 0 |
| | 39-80 | 3.3-8.6 | 7.9-8.4 | 15-30 | 0 | 0.0-1.0 | 0 |
| Aq: | | | | | | | |
| Cumulic Cryaquolls | 0-6 | 9.5-23 | 6.6-7.3 | 0-5 | 0 | 0.0-1.0 | 0 |
| | 6-20 | 9.1-22 | 6.6-7.3 | 0-5 | 0 | 0.0-1.0 | 0 |
| | 20-27 | 9.0-22 | 6.6-7.3 | 0-5 | 0 | 0.0-1.0 | 0 |
| | 27-33 | 8.9-22 | 6.6-7.3 | 0-5 | 0 | 0.0-1.0 | 0 |
| | 33-80 | 8.6-16 | 6.6-7.3 | 0-5 | 0 | 0.0-1.0 | 0 |
| BfA: | | | | | | | |
| Blanfort | 0-2 | 4.6-12 | 7.4-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 2-7 | 7.1-14 | 7.9-8.4 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 7-16 | 6.7-11 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 16-28 | 4.2-11 | 7.9-8.4 | 2-10 | 0 | 0.0-2.0 | 0 |
| | 28-56 | 3.3-10 | 7.9-8.4 | 5-20 | 0 | 0.0-2.0 | 0 |
| | 56-80 | 3.7-11 | 7.9-8.4 | 2-15 | 0 | 0.0-2.0 | 0 |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| BfD: | | | | | | | |
| Blanfort | 0-2 | 4.6-12 | 7.4-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 2-7 | 7.1-14 | 7.9-8.4 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 7-16 | 6.7-11 | 7.9-8.4 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 16-28 | 4.2-11 | 7.9-8.4 | 2-10 | 0 | 0.0-2.0 | 0 |
| | 28-56 | 3.3-10 | 7.9-8.4 | 5-20 | 0 | 0.0-2.0 | 0 |
| | 56-80 | 3.7-11 | 7.9-8.4 | 2-15 | 0 | 0.0-2.0 | 0 |
| CsA: | | | | | | | |
| Cososa | 0-6 | 0.0-8.1 | 7.4-8.4 | 0-3 | 0 | 0.0-2.0 | 0-4 |
| | 6-14 | 7.5-15 | 7.4-7.8 | 0-3 | 0 | 0.0-2.0 | 0-4 |
| | 14-21 | 3.9-11 | 7.4-8.4 | 2-3 | 0 | 0.0-2.0 | 0-4 |
| | 21-49 | 9.7-19 | 7.4-8.4 | 8-20 | 0 | 1.0-2.0 | 5-7 |
| | 49-57 | 0.0-6.3 | 7.9-8.4 | 2-10 | 0 | 2.1-3.1 | 7-9 |
| | 57-74 | 0.0-3.4 | 7.9-8.4 | 2-10 | 0 | 3.3-4.3 | 0-2 |
| | 74-80 | 6.4-12 | 7.9-8.4 | 15-25 | 0 | 3.6-4.6 | 2-4 |
| CsD: | | | | | | | |
| Cososa | 0-6 | 0.0-8.1 | 7.4-8.4 | 0-3 | 0 | 0.0-2.0 | 0-4 |
| | 6-14 | 7.5-15 | 7.4-7.8 | 0-3 | 0 | 0.0-2.0 | 0-4 |
| | 14-21 | 3.9-11 | 7.4-8.4 | 2-3 | 0 | 0.0-2.0 | 0-4 |
| | 21-49 | 9.7-19 | 7.4-8.4 | 8-20 | 0 | 1.0-2.0 | 5-7 |
| | 49-57 | 0.0-6.3 | 7.9-8.4 | 2-10 | 0 | 2.1-3.1 | 7-9 |
| | 57-74 | 0.0-3.4 | 7.9-8.4 | 2-10 | 0 | 3.3-4.3 | 0-2 |
| | 74-80 | 6.4-12 | 7.9-8.4 | 15-25 | 0 | 3.6-4.6 | 2-4 |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| CtA: | | | | | | | |
| Costilla | 0-2 | 1.2-7.6 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 2-7 | 2.1-8.2 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 7-14 | 3.3-8.1 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 14-32 | 2.9-7.4 | 6.6-7.8 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 32-37 | 0.0-6.0 | 7.4-8.4 | 5-15 | 0 | 0.0-2.0 | 0 |
| | 37-80 | 0.0-6.7 | 7.4-8.4 | 3-15 | 0 | 0.0-2.0 | 0 |
| CuF: | | | | | | | |
| Comodore | 0-5 | 10-22 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 5-16 | 17-21 | 6.6-7.3 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 16-80 | 0.0-0.0 | 6.6-7.3 | --- | --- | --- | --- |
| Rock outcrop | 0-60 | --- | --- | --- | --- | --- | --- |
| Uracca | 0-4 | 12-16 | 6.6-7.8 | 0-1 | 0 | 0 | 0 |
| | 4-11 | 15-26 | 6.6-7.8 | 1-5 | 0 | 0 | 0 |
| | 11-18 | 12-23 | 6.6-8.4 | 5-14 | 0 | 0 | 0 |
| | 18-24 | 1.8-7.3 | 7.4-9.0 | 5-14 | 0 | 0 | 0 |
| | 24-52 | 1.8-7.3 | 7.4-9.0 | 5-14 | 0 | 0 | 0 |
| | 52-80 | 1.8-6.2 | 7.4-9.0 | 5-14 | 0 | 0 | 0 |
| DAM: | | | | | | | |
| Dam | --- | --- | --- | --- | --- | --- | --- |
| DrD: | | | | | | | |
| Durreo | 0-6 | 3.9-13 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-1 |
| | 6-14 | 2.6-7.3 | 7.8-9.0 | 15-20 | 0 | 0.0-2.0 | 0-1 |
| | 14-34 | 0.0-3.0 | 7.8-9.0 | 15-35 | 0 | 0.0-2.0 | 0-1 |
| | 34-80 | 0.0-3.0 | 7.8-9.0 | 15-45 | 0 | 0.0-2.0 | 0-1 |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| EaA: | | | | | | | |
| Eastdale | 0-5 | 15-26 | 7.0-8.4 | 0-5 | 0-2 | 1.0-4.0 | 1-13 |
| | 5-15 | 19-25 | 7.4-8.4 | 0-5 | 2-5 | 1.0-4.0 | 1-13 |
| | 15-30 | 13-20 | 7.4-8.4 | 2-15 | 0-2 | 1.0-4.0 | 1-13 |
| | 30-42 | 9.6-23 | 7.4-8.4 | 2-15 | 0-2 | 1.0-4.0 | 1-13 |
| | 42-59 | 6.9-16 | 6.6-7.9 | 0-5 | 0-2 | 1.0-4.0 | 1-13 |
| | 59-80 | 6.9-18 | 6.6-7.9 | 0-5 | 0-2 | 1.0-4.0 | 1-13 |
| FLB: | | | | | | | |
| Fluvents | 0-6 | --- | 6.6-7.3 | 0 | 0 | 0.0-4.0 | 0 |
| | 6-60 | --- | 6.6-7.3 | 0 | 0 | 0.0-4.0 | 0 |
| FtA: | | | | | | | |
| Fuertes | 0-3 | 9.0-23 | 7.4-7.8 | 0-1 | 0 | 0.0-2.0 | 0-2 |
| | 3-7 | 15-28 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0-2 |
| | 7-22 | 12-28 | 7.4-8.4 | 1-15 | 0 | 0.0-2.0 | 0-2 |
| | 22-40 | 14-27 | 7.4-8.4 | 0-2 | 0 | 0.0-2.0 | 0-2 |
| | 40-54 | 13-27 | 7.4-8.4 | 0-2 | 0 | 0.0-2.0 | 0-2 |
| | 54-80 | 0.0-6.3 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0-2 |
| GmE: | | | | | | | |
| Aquic Dystrocryepts | 0-11 | --- | 4.5-5.0 | 0 | 0 | 0 | 0 |
| | 11-20 | --- | 4.5-5.5 | 0 | 0 | 0 | 0 |
| | 20-34 | --- | 4.5-5.5 | 0 | 0 | 0 | 0 |
| | 34-60 | --- | 4.5-5.5 | 0 | 0 | 0 | 0 |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| Gn: | | | | | | | |
| Angostura | 0-1 | 50-90 | 5.1-6.5 | 0 | 0 | 0 | 0 |
| | 1-12 | 8.6-17 | 5.1-6.5 | 0 | 0 | 0 | 0 |
| | 12-24 | 11-20 | 5.1-6.5 | 0 | 0 | 0 | 0 |
| | 24-46 | 14-23 | 5.6-6.5 | 0 | 0 | 0 | 0 |
| | 46-61 | 14-23 | 5.6-6.5 | 0 | 0 | 0 | 0 |
| | 61-72 | 14-23 | 5.1-7.3 | 0 | 0 | 0 | 0 |
| GP: | | | | | | | |
| Pits, gravel | --- | --- | --- | --- | --- | --- | --- |
| GpA: | | | | | | | |
| Graypoint | 0-5 | 12-15 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 5-12 | 15-23 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 12-16 | 9.6-19 | 7.4-7.8 | 1-10 | 0 | 0.0-2.0 | 0 |
| | 16-21 | 0.0-7.9 | 7.4-8.4 | 1-10 | 0 | 0.0-2.0 | 0 |
| | 21-36 | 0.0-2.9 | 7.4-8.4 | 1-5 | 0 | 0.0-2.0 | 0 |
| | 36-80 | 0.0-4.6 | 6.6-7.8 | 0-5 | 0 | 0.0-2.0 | 0 |
| GrA: | | | | | | | |
| Grayco | 0-4 | 9.0-17 | 6.1-7.3 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 4-14 | 10-19 | 6.6-7.3 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 14-18 | 6.0-17 | 7.4-8.4 | 2-3 | 0 | 0.0-2.0 | 0 |
| | 18-24 | 0.0-5.5 | 7.9-8.4 | 2-10 | 0 | 0.0-2.0 | 0 |
| | 24-43 | 0.0-3.8 | 7.9-9.0 | 2-5 | 0 | 0.0-2.0 | 0 |
| | 43-80 | 0.0-4.6 | 7.9-8.4 | 0-2 | 0 | 0.0-2.0 | 0 |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| GrC: | | | | | | | |
| Grayco | 0-4 | 9.0-17 | 6.1-7.3 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 4-14 | 10-19 | 6.6-7.3 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 14-18 | 6.0-17 | 7.4-8.4 | 2-3 | 0 | 0.0-2.0 | 0 |
| | 18-24 | 0.0-5.5 | 7.9-8.4 | 2-10 | 0 | 0.0-2.0 | 0 |
| | 24-43 | 0.0-3.8 | 7.9-9.0 | 2-5 | 0 | 0.0-2.0 | 0 |
| | 43-80 | 0.0-4.6 | 7.9-8.4 | 0-2 | 0 | 0.0-2.0 | 0 |
| Ho: | | | | | | | |
| Hooper, loamy sand | 0-5 | 0.5-7.8 | 7.4-8.4 | 0-5 | 0-5 | 0.0-4.0 | 2-15 |
| | 5-10 | 3.4-20 | 8.5-9.6 | 1-15 | 0-5 | 0.0-4.0 | 13-25 |
| | 10-18 | 3.0-18 | 8.5-9.6 | 15-30 | 0-5 | 0.0-4.0 | 13-25 |
| | 18-23 | 1.5-13 | 8.5-9.6 | 15-30 | 0-5 | 0.0-4.0 | 13-25 |
| | 23-37 | 0.5-11 | 7.4-9.6 | 1-5 | 0-5 | 0.0-4.0 | 2-15 |
| | 37-50 | 0.5-10 | 6.6-8.4 | 0-4 | 0-5 | 0.0-4.0 | 0-5 |
| | 50-80 | 0.0-5.6 | 6.6-8.4 | 0-2 | 0-5 | 0.0-4.0 | 0-2 |
| Hooper, clay loam | 0-4 | 12-17 | 8.5-9.6 | 0-5 | 0-5 | 1.0-4.0 | 2-15 |
| | 4-12 | 4.8-23 | 8.5-9.6 | 1-10 | 0-5 | 1.0-4.0 | 13-25 |
| | 12-26 | 4.5-20 | 8.5-9.6 | 15-30 | 0-5 | 1.0-4.0 | 13-25 |
| | 26-33 | 4.5-17 | 8.5-9.6 | 15-30 | 0-5 | 1.0-4.0 | 13-25 |
| | 33-37 | 2.0-14 | 8.5-9.6 | 15-30 | 0-5 | 1.0-4.0 | 13-25 |
| | 37-50 | 0.0-7.1 | 7.4-9.0 | 1-5 | 0-5 | 1.0-4.0 | 5-15 |
| | 50-72 | 0.0-7.1 | 7.4-8.4 | 0-2 | 0-5 | 1.0-4.0 | 1-5 |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| Hp: | | | | | | | |
| Hooper, clay loam---- | 0-4 | 12-17 | 8.5-9.6 | 0-5 | 0-5 | 1.0-4.0 | 2-15 |
| | 4-12 | 4.8-23 | 8.5-9.6 | 1-10 | 0-5 | 1.0-4.0 | 13-25 |
| | 12-26 | 4.5-20 | 8.5-9.6 | 15-30 | 0-5 | 1.0-4.0 | 13-25 |
| | 26-33 | 4.5-17 | 8.5-9.6 | 15-30 | 0-5 | 1.0-4.0 | 13-25 |
| | 33-37 | 2.0-14 | 8.5-9.6 | 15-30 | 0-5 | 1.0-4.0 | 13-25 |
| | 37-50 | 0.0-7.1 | 7.4-9.0 | 1-5 | 0-5 | 1.0-4.0 | 5-15 |
| | 50-72 | 0.0-7.1 | 7.4-8.4 | 0-2 | 0-5 | 1.0-4.0 | 1-5 |
| Hooper, loamy sand--- | 0-5 | 0.5-7.8 | 7.4-8.4 | 0-5 | 0-5 | 0.0-4.0 | 2-15 |
| | 5-10 | 3.4-20 | 8.5-9.6 | 1-15 | 0-5 | 0.0-4.0 | 13-25 |
| | 10-18 | 3.0-18 | 8.5-9.6 | 15-30 | 0-5 | 0.0-4.0 | 13-25 |
| | 18-23 | 1.5-13 | 8.5-9.6 | 15-30 | 0-5 | 0.0-4.0 | 13-25 |
| | 23-37 | 0.5-11 | 7.4-9.6 | 1-5 | 0-5 | 0.0-4.0 | 2-15 |
| | 37-50 | 0.5-10 | 6.6-8.4 | 0-4 | 0-5 | 0.0-4.0 | 0-5 |
| | 50-80 | 0.0-5.6 | 6.6-8.4 | 0-2 | 0-5 | 0.0-4.0 | 0-2 |
| KbA: | | | | | | | |
| Kibin---------- | 0-1 | 13-16 | 6.1-7.8 | 0-1 | 0 | 0.0-4.0 | 0-1 |
| | 1-3 | 17-22 | 6.1-7.8 | 0-1 | 0 | 0.0-4.0 | 0-1 |
| | 3-9 | 17-22 | 6.1-7.8 | 0-1 | 0 | 0.0-4.0 | 0-1 |
| | 9-14 | 17-28 | 6.6-7.3 | 0-1 | 0 | 0.0-4.0 | 0 |
| | 14-19 | 17-20 | 7.4-8.4 | 0-3 | 0 | 0.0-4.0 | 0 |
| | 19-27 | 11-18 | 7.4-8.4 | 2-3 | 0 | 0.0-4.0 | 0 |
| | 27-37 | 19-27 | 7.4-8.4 | 2-3 | 0 | 0.0-4.0 | 0 |
| | 37-52 | 4.1-10 | 7.4-7.8 | 2-3 | 0 | 0.0-4.0 | 0 |
| | 52-80 | 0.0-7.1 | 6.6-7.8 | 2-3 | 0 | 0.0-4.0 | 0 |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| KbC: | | | | | | | |
| Kibin | 0-1 | 13-16 | 6.1-7.8 | 0-1 | 0 | 0.0-4.0 | 0-1 |
| | 1-3 | 17-22 | 6.1-7.8 | 0-1 | 0 | 0.0-4.0 | 0-1 |
| | 3-9 | 17-22 | 6.1-7.8 | 0-1 | 0 | 0.0-4.0 | 0-1 |
| | 9-14 | 17-28 | 6.6-7.3 | 0-1 | 0 | 0.0-4.0 | 0 |
| | 14-19 | 17-20 | 7.4-8.4 | 0-3 | 0 | 0.0-4.0 | 0 |
| | 19-27 | 11-18 | 7.4-8.4 | 2-3 | 0 | 0.0-4.0 | 0 |
| | 27-37 | 19-27 | 7.4-8.4 | 2-3 | 0 | 0.0-4.0 | 0 |
| | 37-52 | 4.1-10 | 7.4-7.8 | 2-3 | 0 | 0.0-4.0 | 0 |
| | 52-80 | 0.0-7.1 | 6.6-7.8 | 2-3 | 0 | 0.0-4.0 | 0 |
| LbF: | | | | | | | |
| Lambe | 0-3 | 5.7-15 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0-1 |
| | 3-8 | 9.0-22 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0-1 |
| | 8-12 | 8.9-21 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0-1 |
| | 12-22 | 8.6-21 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0-1 |
| | 22-38 | 8.4-21 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0-1 |
| | 38-65 | 7.7-19 | 6.6-7.8 | 1-3 | 0 | 0.0-2.0 | 0-1 |
| | 65-80 | 2.8-10 | 7.4-8.4 | 2-10 | 0 | 0.0-2.0 | 0-1 |
| Woodhall | 0-4 | 4.9-15 | 6.1-7.3 | 0-2 | 0 | 0.0-1.0 | 0-0 |
| | 4-11 | 15-22 | 6.1-7.3 | 0-2 | 0 | 0.0-1.0 | 0-0 |
| | 11-23 | 15-21 | 6.1-7.3 | 0-2 | 0 | 0.0-1.0 | 0-0 |
| | 23-32 | 4.5-14 | 6.1-7.3 | 0-2 | 0 | 0.0-1.0 | 0-0 |
| | >32 | --- | --- | --- | --- | --- | --- |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| LeF: | | | | | | | |
| Fallriver | 0-1 | 50-90 | 5.1-6.0 | 0 | 0 | 0.0-2.0 | 0 |
| | 1-8 | 2.1-10 | 5.1-6.0 | 0-1 | 0 | 0.0-1.0 | 0-1 |
| | 8-18 | --- | 5.1-6.0 | 0-1 | 0 | 0.0-1.0 | 0-1 |
| | 18-37 | 2.9-12 | 5.1-6.0 | 0-1 | 0 | 0.0-1.0 | 0-1 |
| | 37-56 | 2.9-12 | 5.1-6.0 | 0-1 | 0 | 0.0-1.0 | 0-1 |
| | 56-80 | 1.1-8.1 | 5.1-6.0 | 0-1 | 0 | 0.0-1.0 | 0-1 |
| Rock outcrop | 0-60 | --- | --- | --- | --- | --- | --- |
| LH: | | | | | | | |
| Leadville | 0-2 | 50-90 | 5.1-6.5 | 0 | 0 | 0.0-2.0 | 0 |
| | 2-16 | 7.6-17 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 16-22 | 7.6-16 | 5.6-7.3 | 0 | 0 | 0 | 0 |
| | 22-48 | 14-27 | 5.6-7.3 | 0 | 0 | 0 | 0 |
| | 48-65 | 14-23 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| Howlett | 0-2 | 50-90 | 5.1-6.5 | 0 | 0 | 0 | 0 |
| | 2-14 | 7.6-17 | 5.6-7.3 | 0 | 0 | 0 | 0 |
| | 14-23 | 14-27 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 23-47 | 14-27 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 47-65 | 14-27 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| M: | | | | | | | |
| Pits, mine | --- | --- | --- | --- | --- | --- | --- |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| McA: | | | | | | | |
| Mcginty | 0-4 | 3.8-12 | 6.6-8.4 | 1-5 | 0 | 0.6-1.2 | 0-1 |
| | 4-14 | 3.8-16 | 7.4-8.4 | 1-5 | 0 | 0.2-0.8 | 0-1 |
| | 14-33 | 1.8-8.0 | 7.4-8.4 | 10-35 | 0 | 0.0-0.6 | 0-1 |
| | 33-71 | 1.8-10 | 7.4-8.4 | 10-35 | 0 | 0.0-0.6 | 1-1 |
| | 71-80 | 1.8-10 | 7.4-8.4 | 10-35 | 0 | 0.0-0.6 | 1-1 |
| McB: | | | | | | | |
| Mcginty | 0-4 | 3.8-12 | 6.6-8.4 | 1-5 | 0 | 0.6-1.2 | 0-1 |
| | 4-14 | 3.8-16 | 7.4-8.4 | 1-5 | 0 | 0.2-0.8 | 0-1 |
| | 14-33 | 1.8-8.0 | 7.4-8.4 | 10-35 | 0 | 0.0-0.6 | 0-1 |
| | 33-71 | 1.8-10 | 7.4-8.4 | 10-35 | 0 | 0.0-0.6 | 1-1 |
| | 71-80 | 1.8-10 | 7.4-8.4 | 10-35 | 0 | 0.0-0.6 | 1-1 |
| McC: | | | | | | | |
| Mcginty | 0-4 | 3.8-12 | 6.6-8.4 | 1-5 | 0 | 0.6-1.2 | 0-1 |
| | 4-14 | 3.8-16 | 7.4-8.4 | 1-5 | 0 | 0.2-0.8 | 0-1 |
| | 14-33 | 1.8-8.0 | 7.4-8.4 | 10-35 | 0 | 0.0-0.6 | 0-1 |
| | 33-71 | 1.8-10 | 7.4-8.4 | 10-35 | 0 | 0.0-0.6 | 1-1 |
| | 71-80 | 1.8-10 | 7.4-8.4 | 10-35 | 0 | 0.0-0.6 | 1-1 |
| MR: | | | | | | | |
| Mirror | 0-10 | --- | 4.5-5.5 | 0 | 0 | 0 | 0 |
| | 10-25 | --- | 4.5-5.5 | 0 | 0 | 0 | 0 |
| | 25-60 | --- | --- | --- | --- | --- | --- |
| Rock outcrop | 0-60 | --- | --- | --- | --- | --- | --- |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| MsA: | | | | | | | |
| Mosca | 0-6 | 6.9-12 | 7.4-8.4 | 0 | 0 | 4.0-8.0 | 2-10 |
| | 6-12 | 8.9-15 | 8.5-9.6 | 0 | 0 | 4.0-8.0 | 13-30 |
| | 12-20 | 8.9-15 | 8.5-9.6 | 1-5 | 0 | 8.0-16.0 | 13-30 |
| | 20-38 | 6.0-15 | 8.5-9.6 | 20-30 | 0 | 8.0-16.0 | 13-30 |
| | 38-50 | 0.0-8.6 | 7.9-9.6 | 25-35 | 0 | 4.0-8.0 | 5-13 |
| | 50-80 | 0.0-5.5 | 6.6-8.4 | 10-20 | 0 | 2.0-4.0 | 0-5 |
| MtA: | | | | | | | |
| Mesita | 0-3 | 21-25 | 8.5-9.6 | 0-5 | 0-5 | 4.0-30.0 | 13-100 |
| | 3-10 | 21-30 | 8.5-9.6 | 1-5 | 0-5 | 4.0-30.0 | 13-100 |
| | 10-21 | 20-30 | 8.5-9.6 | 1-5 | 1-5 | 4.0-30.0 | 13-100 |
| | 21-38 | 17-26 | 8.5-9.6 | 1-15 | 1-5 | 4.0-30.0 | 13-100 |
| | 38-46 | 8.0-21 | 8.5-9.0 | 1-5 | 1-5 | 2.0-16.0 | 2-20 |
| | 46-55 | 2.0-12 | 8.5-9.0 | 0 | 0-3 | 2.0-16.0 | 0-20 |
| | 55-80 | 19-31 | 8.5-9.0 | 0 | 0-1 | 2.0-16.0 | 0-20 |
| MuC: | | | | | | | |
| Morval | 0-3 | 9.0-17 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 3-7 | 15-22 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 7-10 | 15-21 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 10-18 | 14-20 | 6.6-7.8 | 1-5 | 0 | 0.0-2.0 | 0 |
| | 18-50 | 12-18 | 7.4-8.4 | 15-25 | 0 | 0.0-2.0 | 0 |
| | 50-80 | 6.9-12 | 7.9-8.4 | 15-40 | 0 | 0.0-2.0 | 0 |
| Uracca | 0-4 | 12-16 | 6.6-7.8 | 0-1 | 0 | 0 | 0 |
| | 4-11 | 15-26 | 6.6-7.8 | 1-5 | 0 | 0 | 0 |
| | 11-18 | 12-23 | 6.6-8.4 | 5-14 | 0 | 0 | 0 |
| | 18-24 | 1.8-7.3 | 7.4-9.0 | 5-14 | 0 | 0 | 0 |
| | 24-52 | 1.8-7.3 | 7.4-9.0 | 5-14 | 0 | 0 | 0 |
| | 52-80 | 1.8-6.2 | 7.4-9.0 | 5-14 | 0 | 0 | 0 |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| MuE: | | | | | | | |
| Morval | 0-3 | 9.0-17 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 3-7 | 15-22 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 7-10 | 15-21 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 10-18 | 14-20 | 6.6-7.8 | 1-5 | 0 | 0.0-2.0 | 0 |
| | 18-50 | 12-18 | 7.4-8.4 | 15-25 | 0 | 0.0-2.0 | 0 |
| | 50-80 | 6.9-12 | 7.9-8.4 | 15-40 | 0 | 0.0-2.0 | 0 |
| Uracca | 0-4 | 12-16 | 6.6-7.8 | 0-1 | 0 | 0 | 0 |
| | 4-11 | 15-26 | 6.6-7.8 | 1-5 | 0 | 0 | 0 |
| | 11-18 | 12-23 | 6.6-8.4 | 5-14 | 0 | 0 | 0 |
| | 18-24 | 1.8-7.3 | 7.4-9.0 | 5-14 | 0 | 0 | 0 |
| | 24-52 | 1.8-7.3 | 7.4-9.0 | 5-14 | 0 | 0 | 0 |
| | 52-80 | 1.8-6.2 | 7.4-9.0 | 5-14 | 0 | 0 | 0 |
| PtC: | | | | | | | |
| Potrio | 0-4 | 10-20 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 4-15 | 15-26 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 15-24 | 13-24 | 6.6-8.4 | 1-15 | 0 | 0.0-2.0 | 0 |
| | 24-30 | 10-23 | 7.4-8.4 | 15-30 | 0 | 0.0-2.0 | 0 |
| | 30-36 | 6.5-23 | 7.4-8.4 | 15-45 | 0 | 0.0-2.0 | 0 |
| | 36-42 | 3.5-16 | 7.9-9.0 | 15-45 | 0 | 0.0-2.0 | 0 |
| | 42-80 | --- | 7.4-9.0 | --- | --- | --- | --- |
| RF: | | | | | | | |
| Rock outcrop | 0-60 | --- | --- | --- | --- | --- | --- |
| Rubble Land | 0-60 | --- | --- | 0 | 0 | 0 | 0 |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| RrA: | | | | | | | |
| Trinchera | 0-4 | 8.2-14 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 4-15 | 13-20 | 6.6-7.8 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 15-28 | 8.9-15 | 7.4-8.4 | 15-35 | 0 | 0.0-2.0 | 0 |
| | 28-40 | 2.6-7.0 | 7.4-8.4 | 15-45 | 0 | 0.0-2.0 | 0 |
| | 40-56 | 4.1-8.6 | 7.4-8.4 | 15-20 | 0 | 0.0-2.0 | 0 |
| | 56-70 | 4.1-10 | 7.4-8.4 | 5-15 | 0 | 0.0-2.0 | 0 |
| | 70-80 | 4.8-10 | 7.4-8.4 | 3-15 | 0 | 0.0-2.0 | 0 |
| RrB: | | | | | | | |
| Trinchera | 0-4 | 8.2-14 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 4-15 | 13-20 | 6.6-7.8 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 15-28 | 8.9-15 | 7.4-8.4 | 15-35 | 0 | 0.0-2.0 | 0 |
| | 28-40 | 2.6-7.0 | 7.4-8.4 | 15-45 | 0 | 0.0-2.0 | 0 |
| | 40-56 | 4.1-8.6 | 7.4-8.4 | 15-20 | 0 | 0.0-2.0 | 0 |
| | 56-70 | 4.1-10 | 7.4-8.4 | 5-15 | 0 | 0.0-2.0 | 0 |
| | 70-80 | 4.8-10 | 7.4-8.4 | 3-15 | 0 | 0.0-2.0 | 0 |
| RrD: | | | | | | | |
| Trinchera | 0-4 | 8.2-14 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 4-15 | 13-20 | 6.6-7.8 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 15-28 | 8.9-15 | 7.4-8.4 | 15-35 | 0 | 0.0-2.0 | 0 |
| | 28-40 | 2.6-7.0 | 7.4-8.4 | 15-45 | 0 | 0.0-2.0 | 0 |
| | 40-56 | 4.1-8.6 | 7.4-8.4 | 15-20 | 0 | 0.0-2.0 | 0 |
| | 56-70 | 4.1-10 | 7.4-8.4 | 5-15 | 0 | 0.0-2.0 | 0 |
| | 70-80 | 4.8-10 | 7.4-8.4 | 3-15 | 0 | 0.0-2.0 | 0 |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| ShA: | | | | | | | |
| Shawa | 0-7 | 9.0-14 | 6.6-7.3 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 7-28 | 15-21 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 28-42 | 15-21 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 42-80 | 12-21 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| ShC: | | | | | | | |
| Shawa | 0-7 | 9.0-14 | 6.6-7.3 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 7-28 | 15-21 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 28-42 | 15-21 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 42-80 | 12-21 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| SL: | | | | | | | |
| Scandard | 0-1 | 30-90 | 5.1-6.5 | 0 | 0 | 0.0-2.0 | 0 |
| | 1-7 | 8.9-17 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 7-11 | 8.6-17 | 5.6-6.5 | 0 | 0 | 0 | 0 |
| | 11-18 | 14-27 | 5.6-6.5 | 0 | 0 | 0 | 0 |
| | 18-25 | 14-27 | 5.6-6.5 | 0 | 0 | 0 | 0 |
| | 25-27 | --- | --- | 0 | 0 | --- | 0 |
| | 27-60 | --- | --- | 0 | 0 | --- | 0 |
| Leadville | 0-2 | 50-90 | 5.1-6.5 | 0 | 0 | 0.0-2.0 | 0 |
| | 2-16 | 7.6-17 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| | 16-22 | 7.6-16 | 5.6-7.3 | 0 | 0 | 0 | 0 |
| | 22-48 | 14-27 | 5.6-7.3 | 0 | 0 | 0 | 0 |
| | 48-65 | 14-23 | 6.1-7.3 | 0 | 0 | 0 | 0 |
| Rock outcrop | 0-60 | --- | --- | --- | --- | --- | --- |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| SpD: | | | | | | | |
| Sanpedro | 0-2 | 11-19 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 0 |
| | 2-7 | 15-21 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 0 |
| | 7-11 | 14-19 | 7.4-8.4 | 15-40 | 0 | 0.0-2.0 | 0 |
| | 11-17 | 8.1-13 | 7.9-8.4 | 20-55 | 0 | 0.0-2.0 | 0 |
| | 17-80 | 0.0-0.0 | --- | --- | --- | --- | --- |
| Potrio | 0-4 | 10-20 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 4-15 | 15-26 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 15-24 | 13-24 | 6.6-8.4 | 1-15 | 0 | 0.0-2.0 | 0 |
| | 24-30 | 10-23 | 7.4-8.4 | 15-30 | 0 | 0.0-2.0 | 0 |
| | 30-36 | 6.5-23 | 7.4-8.4 | 15-45 | 0 | 0.0-2.0 | 0 |
| | 36-42 | 3.5-16 | 7.9-9.0 | 15-45 | 0 | 0.0-2.0 | 0 |
| | 42-80 | --- | 7.4-9.0 | --- | --- | --- | --- |
| Rock outcrop | 0-60 | --- | --- | --- | --- | --- | --- |
| SpF: | | | | | | | |
| Sanpedro | 0-2 | 11-19 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 0 |
| | 2-7 | 15-21 | 6.6-7.8 | 0 | 0 | 0.0-2.0 | 0 |
| | 7-11 | 14-19 | 7.4-8.4 | 15-40 | 0 | 0.0-2.0 | 0 |
| | 11-17 | 8.1-13 | 7.9-8.4 | 20-55 | 0 | 0.0-2.0 | 0 |
| | 17-80 | 0.0-0.0 | --- | --- | --- | --- | --- |
| Potrio | 0-4 | 10-20 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 4-15 | 15-26 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 15-24 | 13-24 | 6.6-8.4 | 1-15 | 0 | 0.0-2.0 | 0 |
| | 24-30 | 10-23 | 7.4-8.4 | 15-30 | 0 | 0.0-2.0 | 0 |
| | 30-36 | 6.5-23 | 7.4-8.4 | 15-45 | 0 | 0.0-2.0 | 0 |
| | 36-42 | 3.5-16 | 7.9-9.0 | 15-45 | 0 | 0.0-2.0 | 0 |
| | 42-80 | --- | 7.4-9.0 | --- | --- | --- | --- |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| SpF: | | | | | | | |
| Rock outcrop | 0-60 | --- | --- | --- | --- | --- | --- |
| StB: | | | | | | | |
| Stunner | 0-4 | 8.6-20 | 7.4-7.8 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 4-11 | 16-25 | 7.4-7.8 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 11-20 | 14-20 | 7.9-8.4 | 5-15 | 0 | 0.0-2.0 | 0 |
| | 20-25 | 8.9-16 | 7.9-8.4 | 15-50 | 0 | 0.0-2.0 | 0 |
| | 25-38 | 10-18 | 7.9-8.4 | 15-25 | 0 | 0.0-2.0 | 0 |
| | 38-47 | 12-20 | 7.9-8.4 | 5-15 | 0 | 0.0-2.0 | 0 |
| | 47-77 | 12-20 | 7.9-8.4 | 2-5 | 0 | 0.0-2.0 | 0 |
| | 77-80 | 0.0-7.9 | 7.9-8.4 | 2-5 | 0 | 0.0-2.0 | 0 |
| StC: | | | | | | | |
| Stunner | 0-4 | 8.6-20 | 7.4-7.8 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 4-11 | 16-25 | 7.4-7.8 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 11-20 | 14-20 | 7.9-8.4 | 5-15 | 0 | 0.0-2.0 | 0 |
| | 20-25 | 8.9-16 | 7.9-8.4 | 15-50 | 0 | 0.0-2.0 | 0 |
| | 25-38 | 10-18 | 7.9-8.4 | 15-25 | 0 | 0.0-2.0 | 0 |
| | 38-47 | 12-20 | 7.9-8.4 | 5-15 | 0 | 0.0-2.0 | 0 |
| | 47-77 | 12-20 | 7.9-8.4 | 2-5 | 0 | 0.0-2.0 | 0 |
| | 77-80 | 0.0-7.9 | 7.9-8.4 | 2-5 | 0 | 0.0-2.0 | 0 |
| SzF: | | | | | | | |
| Seitz | 0-1 | 50-90 | 5.1-6.0 | 0 | 0 | 0.0-2.0 | 0 |
| | 1-12 | 7.5-14 | 6.1-7.3 | 0-1 | 0 | 0 | 0 |
| | 12-16 | 22-36 | 6.1-7.3 | 0-1 | 0 | 0 | 0 |
| | 16-18 | 7.5-14 | 6.1-7.3 | 0-1 | 0 | 0 | 0 |
| | 18-40 | 21-35 | 6.1-7.3 | 0-1 | 0 | 0 | 0 |
| | 40-55 | 14-25 | 6.1-7.3 | 0-1 | 0 | 0 | 0 |
| | 55-80 | 8.0-15 | 6.1-7.3 | 0-1 | 0 | 0 | 0 |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| SzF: | | | | | | | |
| Tolvar | 0-2 | 50-90 | 5.1-6.0 | 0 | 0 | 0.0-2.0 | 0 |
| | 2-8 | 7.3-12 | 6.1-7.3 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 8-16 | 10-19 | 6.1-6.5 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 16-20 | 10-19 | 6.1-6.5 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 20-22 | 14-26 | 6.1-6.5 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 22-39 | 13-25 | 6.1-6.5 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 39-80 | 8.9-18 | 6.1-7.3 | 0 | 0 | 0.0-1.0 | 0-1 |
| TlD: | | | | | | | |
| Tolvar | 0-2 | 50-90 | 5.1-6.0 | 0 | 0 | 0.0-2.0 | 0 |
| | 2-8 | 7.3-12 | 6.1-7.3 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 8-16 | 10-19 | 6.1-6.5 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 16-20 | 10-19 | 6.1-6.5 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 20-22 | 14-26 | 6.1-6.5 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 22-39 | 13-25 | 6.1-6.5 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 39-80 | 8.9-18 | 6.1-7.3 | 0 | 0 | 0.0-1.0 | 0-1 |
| Laveta | 0-1 | 50-90 | 5.1-6.0 | 0 | 0 | 0.0-2.0 | 0 |
| | 1-9 | 3.0-9.9 | 6.1-7.3 | 0-1 | 0 | 0.0-1.0 | 0 |
| | 9-17 | 4.5-14 | 6.1-7.3 | 0-1 | 0 | 0.0-1.0 | 0 |
| | 17-26 | 2.6-9.4 | 6.1-7.3 | 0-1 | 0 | 0.0-1.0 | 0 |
| | 26-80 | --- | --- | --- | --- | --- | --- |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| TlF: | | | | | | | |
| Tolvar | 0-2 | 50-90 | 5.1-6.0 | 0 | 0 | 0.0-2.0 | 0 |
| | 2-8 | 7.3-12 | 6.1-7.3 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 8-16 | 10-19 | 6.1-6.5 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 16-20 | 10-19 | 6.1-6.5 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 20-22 | 14-26 | 6.1-6.5 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 22-39 | 13-25 | 6.1-6.5 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 39-80 | 8.9-18 | 6.1-7.3 | 0 | 0 | 0.0-1.0 | 0-1 |
| Laveta | 0-1 | 50-90 | 5.1-6.0 | 0 | 0 | 0.0-2.0 | 0 |
| | 1-9 | 3.0-9.9 | 6.1-7.3 | 0-1 | 0 | 0.0-1.0 | 0 |
| | 9-17 | 4.5-14 | 6.1-7.3 | 0-1 | 0 | 0.0-1.0 | 0 |
| | 17-26 | 2.6-9.4 | 6.1-7.3 | 0-1 | 0 | 0.0-1.0 | 0 |
| | 26-80 | --- | --- | --- | --- | --- | --- |
| Rock outcrop | 0-60 | --- | --- | --- | --- | --- | --- |
| ToF: | | | | | | | |
| Tolvar | 0-2 | 50-90 | 5.1-6.0 | 0 | 0 | 0.0-2.0 | 0 |
| | 2-8 | 7.3-12 | 6.1-7.3 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 8-16 | 10-19 | 6.1-6.5 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 16-20 | 10-19 | 6.1-6.5 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 20-22 | 14-26 | 6.1-6.5 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 22-39 | 13-25 | 6.1-6.5 | 0 | 0 | 0.0-1.0 | 0-1 |
| | 39-80 | 8.9-18 | 6.1-7.3 | 0 | 0 | 0.0-1.0 | 0-1 |
| TvD: | | | | | | | |
| Travelers | 0-3 | 4.6-13 | 7.4-7.8 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 3-7 | 2.8-8.8 | 7.4-8.4 | 5-30 | 0 | 0.0-2.0 | 0 |
| | 7-13 | 1.8-5.3 | 7.4-8.4 | 5-30 | 0 | 0.0-2.0 | 0 |
| | 13-80 | 0.0-0.0 | --- | --- | --- | --- | --- |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| TvD: | | | | | | | |
| Rock outcrop | 0-60 | --- | --- | --- | --- | --- | --- |
| TvF: | | | | | | | |
| Travelers | 0-3 | 4.6-13 | 7.4-7.8 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 3-7 | 2.8-8.8 | 7.4-8.4 | 5-30 | 0 | 0.0-2.0 | 0 |
| | 7-13 | 1.8-5.3 | 7.4-8.4 | 5-30 | 0 | 0.0-2.0 | 0 |
| | 13-80 | 0.0-0.0 | --- | --- | --- | --- | --- |
| Rock outcrop | 0-60 | --- | --- | --- | --- | --- | --- |
| UmF: | | | | | | | |
| Uracca | 0-4 | 12-16 | 6.6-7.8 | 0-1 | 0 | 0 | 0 |
| | 4-11 | 17-26 | 6.6-7.8 | 1-5 | 0 | 0 | 0 |
| | 11-18 | 14-23 | 6.6-8.4 | 5-14 | 0 | 0 | 0 |
| | 18-24 | 1.8-7.3 | 7.4-9.0 | 5-14 | 0 | 0 | 0 |
| | 24-52 | 1.8-7.3 | 7.4-9.0 | 5-14 | 0 | 0 | 0 |
| | 52-80 | 1.8-6.2 | 7.4-9.0 | 5-14 | 0 | 0 | 0 |
| Morval | 0-3 | 9.0-17 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 3-7 | 15-22 | 6.6-7.8 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 7-10 | 15-21 | 6.6-7.8 | 0-2 | 0 | 0.0-2.0 | 0 |
| | 10-18 | 14-20 | 6.6-7.8 | 1-5 | 0 | 0.0-2.0 | 0 |
| | 18-50 | 12-18 | 7.4-8.4 | 15-25 | 0 | 0.0-2.0 | 0 |
| | 50-80 | 6.9-12 | 7.9-8.4 | 15-40 | 0 | 0.0-2.0 | 0 |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| UrF: | | | | | | | |
| Uracca | 0-4 | 12-16 | 6.6-7.8 | 0-1 | 0 | 0 | 0 |
| | 4-11 | 15-26 | 6.6-7.8 | 1-5 | 0 | 0 | 0 |
| | 11-18 | 12-23 | 6.6-8.4 | 5-14 | 0 | 0 | 0 |
| | 18-24 | 1.8-7.3 | 7.4-9.0 | 5-14 | 0 | 0 | 0 |
| | 24-52 | 1.8-7.3 | 7.4-9.0 | 5-14 | 0 | 0 | 0 |
| | 52-80 | 1.8-6.2 | 7.4-9.0 | 5-14 | 0 | 0 | 0 |
| Culebra | 0-3 | 7.1-14 | 6.6-7.8 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 3-11 | 1.8-8.6 | 7.9-8.4 | 5-20 | 0 | 0.0-2.0 | 0 |
| | 11-80 | --- | --- | --- | --- | --- | --- |
| VeA: | | | | | | | |
| Ventero | 0-8 | 50-90 | 5.1-6.0 | 0 | 0 | 0.0-2.0 | 0 |
| | 8-23 | 50-90 | 5.1-6.0 | 0 | 0 | 0.0-2.0 | 0 |
| | 23-38 | 11-18 | 5.6-7.3 | 0-1 | 0 | 0.0-2.0 | 0 |
| | 38-44 | 50-90 | 5.1-6.0 | 0 | 0 | 0.0-2.0 | 0 |
| | 44-60 | 5.5-13 | 6.1-7.8 | 0-1 | 0 | 0.0-2.0 | 0 |
| VgA: | | | | | | | |
| Vastine | 0-3 | 12-18 | 7.4-8.4 | 0-5 | 0-3 | 0.0-2.0 | 0 |
| | 3-13 | 13-20 | 7.4-8.4 | 0-5 | 0-3 | 0.0-2.0 | 0 |
| | 13-21 | 18-23 | 7.4-8.4 | 0-5 | 0-3 | 0.0-2.0 | 0 |
| | 21-27 | 16-23 | 7.4-8.4 | 0-5 | 0-3 | 0.0-2.0 | 0 |
| | 27-58 | 0.0-12 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 58-80 | 0.0-12 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 80-90 | 0.0-8.1 | 7.4-8.4 | 0-5 | 0 | 0.0-2.0 | 0 |

Table 22.--Chemical properties of the soils--continued

| Map symbol and soil name | Depth | Cation exchange capacity | Soil reaction | Calcium carbonate | Gypsum | Salinity | Sodium adsorption ratio |
|---|---|---|---|---|---|---|---|
| | In. | meq/100 g | pH | Pct. | Pct. | mmhos/cm | |
| VgA: | | | | | | | |
| Gerrard | 0-3 | 9.0-16 | 6.6-8.4 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 3-15 | 9.7-25 | 6.6-8.4 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 15-27 | 0.0-8.1 | 6.6-8.4 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 27-48 | 0.0-8.1 | 6.6-8.4 | 0-5 | 0 | 0.0-2.0 | 0 |
| | 48-80 | 0.0-8.1 | 6.6-8.4 | 0-5 | 0 | 0.0-2.0 | 0 |
| W: | | | | | | | |
| Water | --- | --- | --- | --- | --- | --- | --- |

## Table 23.--Soil features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

| Map symbol and soil name | Restrictive layer | | Potential for frost action | Risk of corrosion | |
|---|---|---|---|---|---|
| | Kind | Depth to top | | Uncoated steel | Concrete |
| | | In. | | | |
| AmC: | | | | | |
| Amalia | --- | --- | Moderate | Low | Low |
| AmE: | | | | | |
| Amalia | --- | --- | Moderate | Low | Low |
| Aq: | | | | | |
| Cumulic Cryaquolls | Abrupt textural change | 20-40 | High | High | Low |
| BfA: | | | | | |
| Blanfort | --- | --- | Moderate | Moderate | Low |
| BfD: | | | | | |
| Blanfort | --- | --- | Moderate | Moderate | Low |
| CsA: | | | | | |
| Cososa | --- | --- | Moderate | High | Moderate |
| CsD: | | | | | |
| Cososa | --- | --- | Moderate | High | Moderate |
| CtA: | | | | | |
| Costilla | --- | --- | Low | Moderate | Low |
| CuF: | | | | | |
| Comodore | Lithic bedrock | 10-20 | Moderate | Low | Low |
| Rock outcrop | Lithic bedrock | 0-0 | None | Moderate | --- |
| Uracca | --- | --- | Moderate | Low | Low |

Table 23.--Soil features--continued

| Map symbol and soil name | Restrictive layer | | Potential for frost action | Risk of corrosion | |
|---|---|---|---|---|---|
| | Kind | Depth to top | | Uncoated steel | Concrete |
| | | In. | | | |
| DAM: | | | | | |
| Dam | --- | --- | --- | Moderate | --- |
| DrD: | | | | | |
| Durreo | --- | --- | Moderate | Low | Low |
| EaA: | | | | | |
| Eastdale | --- | --- | Moderate | Low | Low |
| FLB: | | | | | |
| Fluvents | --- | --- | --- | --- | --- |
| FtA: | | | | | |
| Fuertes | --- | --- | Moderate | High | Low |
| GmE: | | | | | |
| Aquic Dystrocryepts | --- | --- | High | High | Moderate |
| Gn: | | | | | |
| Angostura | --- | --- | Moderate | Low | Moderate |
| GP: | | | | | |
| Pits, gravel | --- | --- | --- | Moderate | --- |
| GpA: | | | | | |
| Graypoint | Strongly contrasting textural stratification | 10-20 | Moderate | Low | Low |
| GrA: | | | | | |
| Grayco | Strongly contrasting textural stratification | 10-60 | Moderate | Low | Moderate |

Table 23.--Soil features--continued

| Map symbol and soil name | Restrictive layer | | Potential for frost action | Risk of corrosion | |
|---|---|---|---|---|---|
| | Kind | Depth to top | | Uncoated steel | Concrete |
| | | In. | | | |
| GrC: | | | | | |
| Grayco | Strongly contrasting textural stratification | 10-60 | Moderate | Low | Moderate |
| Ho: | | | | | |
| Hooper, loamy sand | Strongly contrasting textural stratification | 20-60 | Moderate | High | Low |
| Hooper, clay loam | Strongly contrasting textural stratification | 20-60 | Moderate | High | Low |
| Hp: | | | | | |
| Hooper, clay loam | Strongly contrasting textural stratification | 20-60 | Low | High | Low |
| Hooper, loamy sand | Strongly contrasting textural stratification | 20-60 | Low | High | Low |
| KbA: | | | | | |
| Kibin | Strongly contrasting textural stratification | 20-40 | Moderate | Low | Low |
| KbC: | | | | | |
| Kibin | Strongly contrasting textural stratification | 20-40 | Moderate | Low | Low |
| LbF: | | | | | |
| Lambe | --- | --- | Moderate | Low | Low |
| Woodhall | Lithic bedrock | 20-40 | Moderate | Low | Low |
| LeF: | | | | | |
| Fallriver | --- | --- | Moderate | Low | High |

Table 23.--Soil features--continued

| Map symbol and soil name | Restrictive layer | | Potential for frost action | Risk of corrosion | |
|---|---|---|---|---|---|
| | Kind | Depth to top | | Uncoated steel | Concrete |
| | | In. | | | |
| LeF: | | | | | |
| Rock outcrop | Lithic bedrock | 0-0 | None | Moderate | --- |
| LH: | | | | | |
| Leadville | --- | --- | Moderate | Moderate | Low |
| Howlett | --- | --- | Moderate | Low | Low |
| M: | | | | | |
| Pits, mine | --- | --- | --- | Moderate | --- |
| McA: | | | | | |
| McGinty | --- | --- | Moderate | Low | Low |
| McB: | | | | | |
| McGinty | --- | --- | Moderate | Low | Low |
| McC: | | | | | |
| McGinty | --- | --- | Moderate | Low | Low |
| MR: | | | | | |
| Mirror | Lithic bedrock | 20-40 | Moderate | Low | Moderate |
| Rock outcrop | Lithic bedrock | 0-0 | --- | --- | --- |
| MsA: | | | | | |
| Mosca | Natric | 4-7 | Moderate | High | Moderate |
| MtA: | | | | | |
| Mesita | --- | --- | Moderate | High | High |
| MuC: | | | | | |
| Morval | --- | --- | Moderate | Low | Low |

Table 23.--Soil features--continued

| Map symbol and soil name | Restrictive layer | | Potential for frost action | Risk of corrosion | |
|---|---|---|---|---|---|
| | Kind | Depth to top | | Uncoated steel | Concrete |
| | | In. | | | |
| MuC: | | | | | |
| Uracca | --- | --- | Moderate | Low | Low |
| MuE: | | | | | |
| Morval | --- | --- | Moderate | Low | Low |
| Uracca | --- | --- | Moderate | Low | Low |
| PtC: | | | | | |
| Potrio | Lithic bedrock | 40-60 | Moderate | Low | Low |
| RF: | | | | | |
| Rock outcrop | Lithic bedrock | 0-0 | --- | --- | --- |
| Rubble land | --- | --- | --- | --- | --- |
| RrA: | | | | | |
| Trinchera | --- | --- | Moderate | Low | Low |
| RrB: | | | | | |
| Trinchera | --- | --- | Moderate | Low | Low |
| RrD: | | | | | |
| Trinchera | --- | --- | Moderate | Low | Low |
| ShA: | | | | | |
| Shawa | --- | --- | Moderate | Low | Low |
| ShC: | | | | | |
| Shawa | --- | --- | Moderate | Low | Low |
| SL: | | | | | |
| Scandard | Lithic bedrock | 20-40 | Moderate | Low | Low |

Table 23.--Soil features--continued

| Map symbol and soil name | Restrictive layer | | Potential for frost action | Risk of corrosion | |
|---|---|---|---|---|---|
| | Kind | Depth to top | | Uncoated steel | Concrete |
| | | In. | | | |
| SL: | | | | | |
| Leadville | --- | --- | Moderate | Moderate | Low |
| Rock outcrop | Lithic bedrock | 0-0 | --- | --- | --- |
| SpD: | | | | | |
| Sanpedro | Lithic bedrock | 10-20 | Moderate | Low | Low |
| Potrio | Lithic bedrock | 40-60 | Moderate | Low | Low |
| Rock outcrop | Lithic bedrock | 0-0 | None | Moderate | --- |
| SpF: | | | | | |
| Sanpedro | Lithic bedrock | 10-20 | Moderate | Low | Low |
| Potrio | Lithic bedrock | 40-60 | Moderate | Low | Low |
| Rock outcrop | Lithic bedrock | 0-0 | None | Moderate | --- |

Table 23.--Soil features

| | | | | | |
|---|---|---|---|---|---|
| StB: | | | | | |
| Stunner | --- | --- | Moderate | Low | Low |
| StC: | | | | | |
| Stunner | --- | --- | Moderate | Low | Low |
| SzF: | | | | | |
| Seitz | --- | --- | Moderate | Moderate | Moderate |
| Tolvar | --- | --- | Moderate | Low | Low |
| TlD: | | | | | |
| Tolvar | --- | --- | Moderate | Low | Low |

Table 23.--Soil features--continued

| Map symbol and soil name | Restrictive layer | | Potential for frost action | Risk of corrosion | |
|---|---|---|---|---|---|
| | Kind | Depth to top | | Uncoated steel | Concrete |
| | | In. | | | |
| TlD: | | | | | |
| Laveta | Lithic bedrock | 20-40 | Moderate | Low | High |
| TlF: | | | | | |
| Tolvar | --- | --- | Moderate | Low | Low |
| Laveta | Lithic bedrock | 20-40 | Moderate | Low | High |
| Rock outcrop | Lithic bedrock | 0-0 | None | Moderate | --- |
| ToF: | | | | | |
| Tolvar | --- | --- | Moderate | Low | Low |
| TvD: | | | | | |
| Travelers | Lithic bedrock | 10-20 | Moderate | Low | Low |
| Rock outcrop | Lithic bedrock | 0-0 | None | Moderate | --- |
| TvF: | | | | | |
| Travelers | Lithic bedrock | 10-20 | Moderate | Low | Low |
| Rock outcrop | Lithic bedrock | 0-0 | None | Moderate | --- |
| UmF: | | | | | |
| Uracca | --- | --- | Moderate | Low | Low |
| Morval | --- | --- | Moderate | Low | Low |
| UrF: | | | | | |
| Uracca | --- | --- | Moderate | Low | Low |
| Culebra | Lithic bedrock | 10-20 | Moderate | Low | Low |

Table 23.--Soil features--continued

| Map symbol and soil name | Restrictive layer | | Potential for frost action | Risk of corrosion | |
|---|---|---|---|---|---|
| | Kind | Depth to top | | Uncoated steel | Concrete |
| | | In. | | | |
| VeA: | | | | | |
| Ventero | --- | --- | Moderate | High | Moderate |
| VgA: | | | | | |
| Vastine | Strongly contrasting textural stratification | 20-40 | Moderate | High | Low |
| Gerrard | Strongly contrasting textural stratification | 12-20 | Moderate | High | Low |
| W: | | | | | |
| Water | --- | --- | --- | Moderate | --- |

## Table 24.--Water features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

| Map symbol and soil name | Hydrologic group | Surface runoff | Month | Water table | | Ponding | | | Flooding | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Upper limit | Lower limit | Surface water depth | Duration | Frequency | Duration | Frequency |
| | | | | Ft. | Ft. | Ft. | | | | |
| AmC: | | | | | | | | | | |
| Amalia | C | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| AmE: | | | | | | | | | | |
| Amalia | C | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Aq: | | | | | | | | | | |
| Cumulic Cryaquolls | D | Negligible | January | 0.0-0.5 | 0.5-1.5 | --- | --- | None | --- | None |
| | | | February | --- | --- | --- | --- | None | --- | None |
| | | | March | 1.0-3.3 | >6.0 | 0.0-3.0 | Brief | Occasional | Brief | Frequent |
| | | | April | 1.0-3.3 | >6.0 | 0.0-3.0 | Brief | Occasional | Brief | Frequent |
| | | | May | 1.0-3.3 | >6.0 | 0.0-3.0 | Brief | Occasional | Brief | Frequent |
| | | | June | 1.0-3.3 | >6.0 | 0.0-3.0 | Brief | Occasional | Brief | Frequent |
| | | | July | 1.0-3.3 | >6.0 | 0.0-3.0 | Brief | Occasional | Brief | Frequent |
| | | | August | 1.0-3.3 | >6.0 | 0.0-3.0 | Brief | Occasional | Brief | Frequent |
| | | | September | --- | --- | 0.0-3.0 | Brief | Occasional | Brief | Frequent |
| | | | October | --- | --- | --- | --- | None | --- | None |
| | | | November | --- | --- | --- | --- | None | --- | None |
| | | | December | --- | --- | --- | --- | None | --- | None |
| BfA: | | | | | | | | | | |
| Blanfort | A | Very low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| BfD: | | | | | | | | | | |
| Blanfort | A | Low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| CsA: | | | | | | | | | | |
| Cososa | B | Low | Jan-Dec | --- | --- | --- | --- | None | --- | None |

Table 24.--Water features--continued

| Map symbol and soil name | Hydrologic group | Surface runoff | Month | Water table | | Ponding | | | Flooding | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Upper limit | Lower limit | Surface water depth | Duration | Frequency | Duration | Frequency |
| | | | | Ft. | Ft. | Ft. | | | | |
| CsD: | | | | | | | | | | |
| Cososa | B | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| CtA: | | | | | | | | | | |
| Costilla | A | Very low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| CuF: | | | | | | | | | | |
| Comodore | D | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Rock outcrop | --- | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Uracca | B | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| DAM: | | | | | | | | | | |
| Dam | --- | --- | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| DrD: | | | | | | | | | | |
| Durreo | A | Low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| EaA: | | | | | | | | | | |
| Eastdale | C | Negligible | January | --- | --- | --- | --- | None | --- | None |
| | | | February | --- | --- | --- | --- | None | --- | None |
| | | | March | --- | --- | --- | --- | None | --- | None |
| | | | April | --- | --- | 1.0-3.0 | Brief | Occasional | Brief | Occasional |
| | | | May | --- | --- | 1.0-3.0 | Brief | Occasional | Brief | Occasional |
| | | | June | --- | --- | 1.0-3.0 | Brief | Occasional | Brief | Occasional |
| | | | July | --- | --- | 1.0-3.0 | Brief | Occasional | --- | None |
| | | | August | --- | --- | 1.0-3.0 | Brief | Occasional | --- | None |
| | | | September | --- | --- | --- | --- | None | --- | None |
| | | | October | --- | --- | --- | --- | None | --- | None |
| | | | November | --- | --- | --- | --- | None | --- | None |
| | | | December | --- | --- | --- | --- | None | --- | None |

Table 24.--Water features--continued

| Map symbol and soil name | Hydrologic group | Surface runoff | Month | Water table | | Ponding | | | Flooding | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Upper limit | Lower limit | Surface water depth | Duration | Frequency | Duration | Frequency |
| | | | | Ft. | Ft. | Ft. | | | | |
| FLB: | | | | | | | | | | |
| Fluvents | D | Negligible | January | 0.0-2.0 | >6.0 | --- | --- | None | Very long | Frequent |
| | | | February | 0.0-2.0 | >6.0 | --- | --- | None | Very long | Frequent |
| | | | March | 0.0-2.0 | >6.0 | --- | --- | None | Very long | Frequent |
| | | | April | 0.0-2.0 | >6.0 | --- | --- | None | Very long | Frequent |
| | | | May | 0.0-2.0 | >6.0 | --- | --- | None | Very long | Frequent |
| | | | June | 0.0-2.0 | >6.0 | --- | --- | None | Very long | Frequent |
| | | | July | 0.0-2.0 | >6.0 | --- | --- | None | Very long | Frequent |
| | | | August | 0.0-2.0 | >6.0 | --- | --- | None | --- | --- |
| | | | September | 0.0-2.0 | >6.0 | --- | --- | None | --- | --- |
| | | | October | 0.0-2.0 | >6.0 | --- | --- | None | Very long | Frequent |
| | | | November | 0.0-2.0 | >6.0 | --- | --- | None | Very long | Frequent |
| | | | December | 0.0-2.0 | >6.0 | --- | --- | None | Very long | Frequent |
| FtA: | | | | | | | | | | |
| Fuertes | C | Low | January | 1.5-3.5 | --- | --- | --- | None | --- | None |
| | | | Feb-Dec | --- | --- | --- | --- | None | --- | None |
| GmE: | | | | | | | | | | |
| Aquic Dystrocryepts | C | Medium | January | --- | --- | --- | --- | None | --- | None |
| | | | February | --- | --- | --- | --- | None | --- | None |
| | | | March | --- | --- | --- | --- | None | --- | None |
| | | | April | --- | --- | --- | --- | None | --- | None |
| | | | May | --- | --- | --- | --- | None | --- | None |
| | | | June | 2.0-3.0 | --- | --- | --- | None | --- | None |
| | | | July | 2.0-3.0 | --- | --- | --- | None | --- | None |
| | | | August | 2.0-3.0 | --- | --- | --- | None | --- | None |
| | | | September | 2.0-3.0 | --- | --- | --- | None | --- | None |
| | | | October | --- | --- | --- | --- | None | --- | None |
| | | | November | --- | --- | --- | --- | None | --- | None |
| | | | December | --- | --- | --- | --- | None | --- | None |

Table 24.--Water features--continued

| Map symbol and soil name | Hydrologic group | Surface runoff | Month | Water table | | Ponding | | | Flooding | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Upper limit | Lower limit | Surface water depth | Duration | Frequency | Duration | Frequency |
| | | | | Ft. | Ft. | Ft. | | | | |
| Gn: | | | | | | | | | | |
| Angostura | B | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| GP: | | | | | | | | | | |
| Pits, gravel | --- | --- | Jan-Dec | --- | --- | --- | --- | --- | --- | --- |
| GpA: | | | | | | | | | | |
| Graypoint | B | Low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| GrA: | | | | | | | | | | |
| Grayco | B | Low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| GrC: | | | | | | | | | | |
| Grayco | B | Low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Ho: | | | | | | | | | | |
| Hooper, loamy sand | C | Medium | January | --- | --- | --- | --- | None | --- | None |
| | | | February | --- | --- | --- | --- | None | --- | None |
| | | | March | --- | --- | --- | --- | None | --- | None |
| | | | April | --- | --- | --- | --- | None | --- | None |
| | | | May | --- | --- | --- | --- | None | --- | None |
| | | | June | 4.0-6.0 | >6.0 | --- | --- | None | --- | None |
| | | | July | 4.0-6.0 | >6.0 | --- | --- | None | --- | None |
| | | | August | 4.0-6.0 | >6.0 | --- | --- | None | --- | None |
| | | | September | 4.0-6.0 | >6.0 | --- | --- | None | --- | None |
| | | | October | --- | --- | --- | --- | None | --- | None |
| | | | November | --- | --- | --- | --- | None | --- | None |
| | | | December | --- | --- | --- | --- | None | --- | None |

Table 24.--Water features--continued

| Map symbol and soil name | Hydrologic group | Surface runoff | Month | Water table | | Ponding | | | Flooding | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Upper limit | Lower limit | Surface water depth | Duration | Frequency | Duration | Frequency |
| | | | | Ft. | Ft. | Ft. | | | | |
| Ho: | | | | | | | | | | |
| Hooper, clay loam--------- | C | Negligible | January | --- | --- | --- | --- | None | --- | None |
| | | | February | --- | --- | --- | --- | None | --- | None |
| | | | March | --- | --- | --- | --- | None | --- | None |
| | | | April | --- | --- | 0.0-2.0 | Brief | Occasional | --- | None |
| | | | May | --- | --- | 0.0-2.0 | Brief | Occasional | --- | None |
| | | | June | 4.0-6.0 | >6.0 | 0.0-2.0 | Brief | Occasional | --- | None |
| | | | July | 4.0-6.0 | >6.0 | 0.0-2.0 | Brief | Occasional | --- | None |
| | | | August | 4.0-6.0 | >6.0 | 0.0-2.0 | Brief | Occasional | --- | None |
| | | | September | 4.0-6.0 | >6.0 | 0.0-2.0 | Brief | Occasional | --- | None |
| | | | October | --- | --- | --- | --- | None | --- | None |
| | | | November | --- | --- | --- | --- | None | --- | None |
| | | | December | --- | --- | --- | --- | None | --- | None |
| Hp: | | | | | | | | | | |
| Hooper, clay loam--------- | C | Negligible | January | --- | --- | --- | --- | None | --- | None |
| | | | February | --- | --- | --- | --- | None | --- | None |
| | | | March | --- | --- | --- | --- | None | --- | None |
| | | | April | --- | --- | 0.0-2.0 | Brief | Occasional | --- | None |
| | | | May | --- | --- | 0.0-2.0 | Brief | Occasional | --- | None |
| | | | June | 4.0-6.0 | >6.0 | 0.0-2.0 | Brief | Occasional | --- | None |
| | | | July | 4.0-6.0 | >6.0 | 0.0-2.0 | Brief | Occasional | --- | None |
| | | | August | 4.0-6.0 | >6.0 | 0.0-2.0 | Brief | Occasional | --- | None |
| | | | September | 4.0-6.0 | >6.0 | 0.0-2.0 | Brief | Occasional | --- | None |
| | | | October | --- | --- | --- | --- | None | --- | None |
| | | | November | --- | --- | --- | --- | None | --- | None |
| | | | December | --- | --- | --- | --- | None | --- | None |

Table 24.--Water features--continued

| Map symbol and soil name | Hydrologic group | Surface runoff | Month | Water table | | Ponding | | | Flooding | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Upper limit | Lower limit | Surface water depth | Duration | Frequency | Duration | Frequency |
| | | | | Ft. | Ft. | Ft. | | | | |
| Hp: | | | | | | | | | | |
| Hooper, loamy sand | C | Medium | January | --- | --- | --- | --- | None | --- | None |
| | | | February | --- | --- | --- | --- | None | --- | None |
| | | | March | --- | --- | --- | --- | None | --- | None |
| | | | April | --- | --- | --- | --- | None | --- | None |
| | | | May | --- | --- | --- | --- | None | --- | None |
| | | | June | 4.0-6.0 | >6.0 | --- | --- | None | --- | None |
| | | | July | 4.0-6.0 | >6.0 | --- | --- | None | --- | None |
| | | | August | 4.0-6.0 | >6.0 | --- | --- | None | --- | None |
| | | | September | 4.0-6.0 | >6.0 | --- | --- | None | --- | None |
| | | | October | --- | --- | --- | --- | None | --- | None |
| | | | November | --- | --- | --- | --- | None | --- | None |
| | | | December | --- | --- | --- | --- | None | --- | None |
| KbA: | | | | | | | | | | |
| Kibin | C | Low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| KbC: | | | | | | | | | | |
| Kibin | C | Low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| LbF: | | | | | | | | | | |
| Lambe | B | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Woodhall | C | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| LeF: | | | | | | | | | | |
| Fallriver | A | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Rock outcrop | --- | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| LH: | | | | | | | | | | |
| Leadville | B | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |

Table 24.--Water features--continued

| Map symbol and soil name | Hydrologic group | Surface runoff | Month | Water table | | Ponding | | | Flooding | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Upper limit | Lower limit | Surface water depth | Duration | Frequency | Duration | Frequency |
| | | | | Ft. | Ft. | Ft. | | | | |
| LH: | | | | | | | | | | |
| Howlett | B | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| M: | | | | | | | | | | |
| Pits, mine | --- | --- | Jan-Dec | --- | --- | --- | --- | --- | --- | --- |
| McA: | | | | | | | | | | |
| McGinty | A | Very low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| McB: | | | | | | | | | | |
| McGinty | A | Very low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| McC: | | | | | | | | | | |
| McGinty | A | Low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| MR: | | | | | | | | | | |
| Mirror | B | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Rock outcrop | --- | Very high | Jan-Dec | --- | --- | --- | --- | --- | --- | --- |
| MsA: | | | | | | | | | | |
| Mosca | A | Very low | Jan-Dec | --- | --- | --- | --- | None | --- | None |

Table 24.--Water features--continued

| Map symbol and soil name | Hydrologic group | Surface runoff | Month | Water table | | Ponding | | | Flooding | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Upper limit | Lower limit | Surface water depth | Duration | Frequency | Duration | Frequency |
| | | | | Ft. | Ft. | Ft. | | | | |
| MtA: | | | | | | | | | | |
| Mesita | C | Negligible | January | --- | --- | --- | --- | None | --- | None |
| | | | February | --- | --- | --- | --- | None | --- | None |
| | | | March | --- | --- | --- | --- | None | --- | None |
| | | | April | --- | --- | 1.0-3.0 | Brief | Occasional | Brief | Occasional |
| | | | May | --- | --- | 1.0-3.0 | Brief | Occasional | Brief | Occasional |
| | | | June | --- | --- | 1.0-3.0 | Brief | Occasional | Brief | Occasional |
| | | | July | --- | --- | 1.0-3.0 | Brief | Occasional | --- | None |
| | | | August | --- | --- | 1.0-3.0 | Brief | Occasional | --- | None |
| | | | September | --- | --- | --- | --- | None | --- | None |
| | | | October | --- | --- | --- | --- | None | --- | None |
| | | | November | --- | --- | --- | --- | None | --- | None |
| | | | December | --- | --- | --- | --- | None | --- | None |
| MuC: | | | | | | | | | | |
| Morval | B | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Uracca | B | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| MuE: | | | | | | | | | | |
| Morval | B | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Uracca | B | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| PtC: | | | | | | | | | | |
| Potrio | B | Low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| RF: | | | | | | | | | | |
| Rock outcrop | --- | Very high | Jan-Dec | --- | --- | --- | --- | --- | --- | --- |
| Rubble land | A | Medium | Jan-Dec | --- | --- | --- | --- | --- | --- | --- |

Table 24.--Water features--continued

| Map symbol and soil name | Hydrologic group | Surface runoff | Month | Water table | | Ponding | | | Flooding | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Upper limit | Lower limit | Surface water depth | Duration | Frequency | Duration | Frequency |
| | | | | Ft. | Ft. | Ft. | | | | |
| RrA: | | | | | | | | | | |
| Trinchera | B | Low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| RrB: | | | | | | | | | | |
| Trinchera | B | Low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| RrD: | | | | | | | | | | |
| Trinchera | B | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| ShA: | | | | | | | | | | |
| Shawa | B | Low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| ShC: | | | | | | | | | | |
| Shawa | B | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| SL: | | | | | | | | | | |
| Scandard | C | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Leadville | B | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Rock outcrop | --- | Very high | Jan-Dec | --- | --- | --- | --- | --- | --- | --- |
| SpD: | | | | | | | | | | |
| Sanpedro | D | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Potrio | B | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Rock outcrop | --- | Low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| SpF: | | | | | | | | | | |
| Sanpedro | D | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |

Table 24.--Water features--continued

| Map symbol and soil name | Hydrologic group | Surface runoff | Month | Water table | | Ponding | | | Flooding | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Upper limit | Lower limit | Surface water depth | Duration | Frequency | Duration | Frequency |
| | | | | Ft. | Ft. | Ft. | | | | |
| SpF: | | | | | | | | | | |
| Potrio | B | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Rock outcrop | --- | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| StB: | | | | | | | | | | |
| Stunner | C | Low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| StC: | | | | | | | | | | |
| Stunner | C | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| SzF: | | | | | | | | | | |
| Seitz | C | Very high | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Tolvar | B | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| TlD: | | | | | | | | | | |
| Tolvar | B | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Laveta | B | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| TlF: | | | | | | | | | | |
| Tolvar | B | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Laveta | B | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Rock outcrop | --- | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| ToF: | | | | | | | | | | |
| Tolvar | B | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |

Table 24.--Water features--continued

| Map symbol and soil name | Hydrologic group | Surface runoff | Month | Water table | | Ponding | | | Flooding | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Upper limit | Lower limit | Surface water depth | Duration | Frequency | Duration | Frequency |
| | | | | Ft. | Ft. | Ft. | | | | |
| TvD: | | | | | | | | | | |
| Travelers | D | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Rock outcrop | --- | Low | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| TvF: | | | | | | | | | | |
| Travelers | D | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Rock outcrop | --- | Medium | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| UmF: | | | | | | | | | | |
| Uracca | B | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Morval | B | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| UrF: | | | | | | | | | | |
| Uracca | B | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |
| Culebra | D | High | Jan-Dec | --- | --- | --- | --- | None | --- | None |

Table 24.--Water features--continued

| Map symbol and soil name | Hydrologic group | Surface runoff | Month | Water table | | Ponding | | | Flooding | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Upper limit | Lower limit | Surface water depth | Duration | Frequency | Duration | Frequency |
| | | | | Ft. | Ft. | Ft. | | | | |
| VeA: | | | | | | | | | | |
| Ventero | D | Negligible | January | 0.0-0.5 | --- | 0.0-0.2 | Brief | Occasional | Brief | Occasional |
| | | | February | 0.0-0.5 | --- | 0.0-0.2 | Brief | Occasional | Brief | Occasional |
| | | | March | 0.0-0.5 | --- | 0.0-0.2 | Brief | Occasional | Brief | Occasional |
| | | | April | 0.0-0.5 | --- | 0.0-0.5 | Very long | Frequent | Brief | Occasional |
| | | | May | 0.0-0.5 | --- | 0.0-0.5 | Very long | Frequent | Brief | Occasional |
| | | | June | 0.0-0.5 | --- | 0.0-0.5 | Very long | Frequent | Brief | Occasional |
| | | | July | 0.0-0.5 | --- | 0.0-0.2 | Brief | Occasional | Brief | Occasional |
| | | | August | 0.0-0.5 | --- | 0.0-0.2 | Brief | Occasional | Brief | Occasional |
| | | | September | 0.0-0.5 | --- | 0.0-0.2 | Brief | Occasional | Brief | Occasional |
| | | | October | 0.0-0.5 | --- | 0.0-0.2 | Brief | Occasional | Brief | Occasional |
| | | | November | 0.0-0.5 | --- | 0.0-0.2 | Brief | Occasional | Brief | Occasional |
| | | | December | 0.0-0.5 | --- | 0.0-0.2 | Brief | Occasional | Brief | Occasional |
| VgA: | | | | | | | | | | |
| Vastine | C/D | Very high | January | --- | --- | --- | --- | None | --- | None |
| | | | February | --- | --- | --- | --- | None | --- | None |
| | | | March | --- | --- | --- | --- | None | --- | None |
| | | | April | 0.8-1.7 | >6.0 | --- | --- | None | Brief | Occasional |
| | | | May | 0.8-1.7 | >6.0 | --- | --- | None | Brief | Occasional |
| | | | June | 0.8-1.7 | >6.0 | --- | --- | None | Brief | Occasional |
| | | | July | 0.8-1.7 | >6.0 | --- | --- | None | --- | None |
| | | | August | 0.8-1.7 | >6.0 | --- | --- | None | --- | None |
| | | | September | 0.8-1.7 | >6.0 | --- | --- | None | --- | None |
| | | | October | 1.0-3.0 | >6.0 | --- | --- | None | --- | None |
| | | | November | --- | --- | --- | --- | None | --- | None |
| | | | December | --- | --- | --- | --- | None | --- | None |

Table 24.--Water features--continued

| Map symbol and soil name | Hydrologic group | Surface runoff | Month | Water table | | Ponding | | | Flooding | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Upper limit | Lower limit | Surface water depth | Duration | Frequency | Duration | Frequency |
| | | | | Ft. | Ft. | Ft. | | | | |
| VgA: | | | | | | | | | | |
| Gerrard | C/D | Very high | January | --- | --- | --- | --- | None | --- | None |
| | | | February | --- | --- | --- | --- | None | --- | None |
| | | | March | --- | --- | --- | --- | None | --- | None |
| | | | April | 0.8-1.7 | >6.0 | --- | --- | None | Brief | Occasional |
| | | | May | 0.8-1.7 | >6.0 | --- | --- | None | Brief | Occasional |
| | | | June | 0.8-1.7 | >6.0 | --- | --- | None | Brief | Occasional |
| | | | July | 0.8-1.7 | >6.0 | --- | --- | None | --- | None |
| | | | August | 0.8-1.7 | >6.0 | --- | --- | None | --- | None |
| | | | September | 0.8-1.7 | >6.0 | --- | --- | None | --- | None |
| | | | October | 0.8-1.7 | >6.0 | --- | --- | None | --- | None |
| | | | November | --- | --- | --- | --- | None | --- | None |
| | | | December | --- | --- | --- | --- | None | --- | None |
| W: | | | | | | | | | | |
| Water | --- | --- | Jan-Dec | --- | --- | --- | --- | --- | --- | --- |

**Table 25.--Taxonomic classification of the soils**

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

| Soil name | Family or higher taxonomic class |
|---|---|
| Amalia | Loamy-skeletal, mixed, superactive, frigid Calcidic Haplustalfs |
| Angostura | Loamy-skeletal, mixed, superactive Typic Glossocryalfs |
| Aquic Dystrocryepts | Aquic Dystrocryepts |
| Blanfort | Coarse-loamy, mixed, superactive, frigid Ustic Haplocalcids |
| Comodore | Loamy-skeletal, mixed, superactive, frigid Aridic Lithic Haplustolls |
| Cososa | Coarse-loamy, mixed, superactive, frigid Typic Haplocalcids |
| Costilla | Sandy, mixed, frigid Typic Haplocalcids |
| Culebra | Loamy-skeletal, mixed, superactive, frigid Lithic Calciustepts |
| Cumulic Cryaquolls | Cumulic Cryaquolls |
| Durreo | Loamy-skeletal, mixed, superactive, frigid Typic Haplocalcids |
| Eastdale | Fine-loamy, mixed, superactive, frigid Cumulic Endoaquolls |
| Fallriver | Loamy-skeletal, isotic Typic Dystrocryepts |
| Fluvents | Fluvents |
| Fuertes | Fine-loamy, mixed, superactive, frigid Oxyaquic Argiustolls |
| Gerrard | Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Typic Endoaquolls |
| Grayco | Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Ustic Haplargids |
| Graypoint | Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Typic Haplargids |
| Hooper | Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Typic Natrargids |
| Howlett | Fine-loamy, mixed, superactive Ustic Haplocryalfs |
| Kibin | Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Pachic Argiustolls |
| Lambe | Loamy-skeletal, mixed, superactive Ustic Argicryolls |
| Laveta | Loamy-skeletal, mixed, superactive Ustic Haplocryalfs |
| Leadville | Loamy-skeletal, mixed, superactive Ustic Glossocryalfs |
| McGinty | Coarse-loamy, mixed, superactive, frigid Typic Haplocalcids |
| Mesita | Fine, smectitic, frigid Leptic Torrertic Natrustolls |
| Mirror | Loamy-skeletal, isotic Typic Humicryepts |
| Morval | Fine-loamy, mixed, superactive, frigid Calcidic Argiustolls |

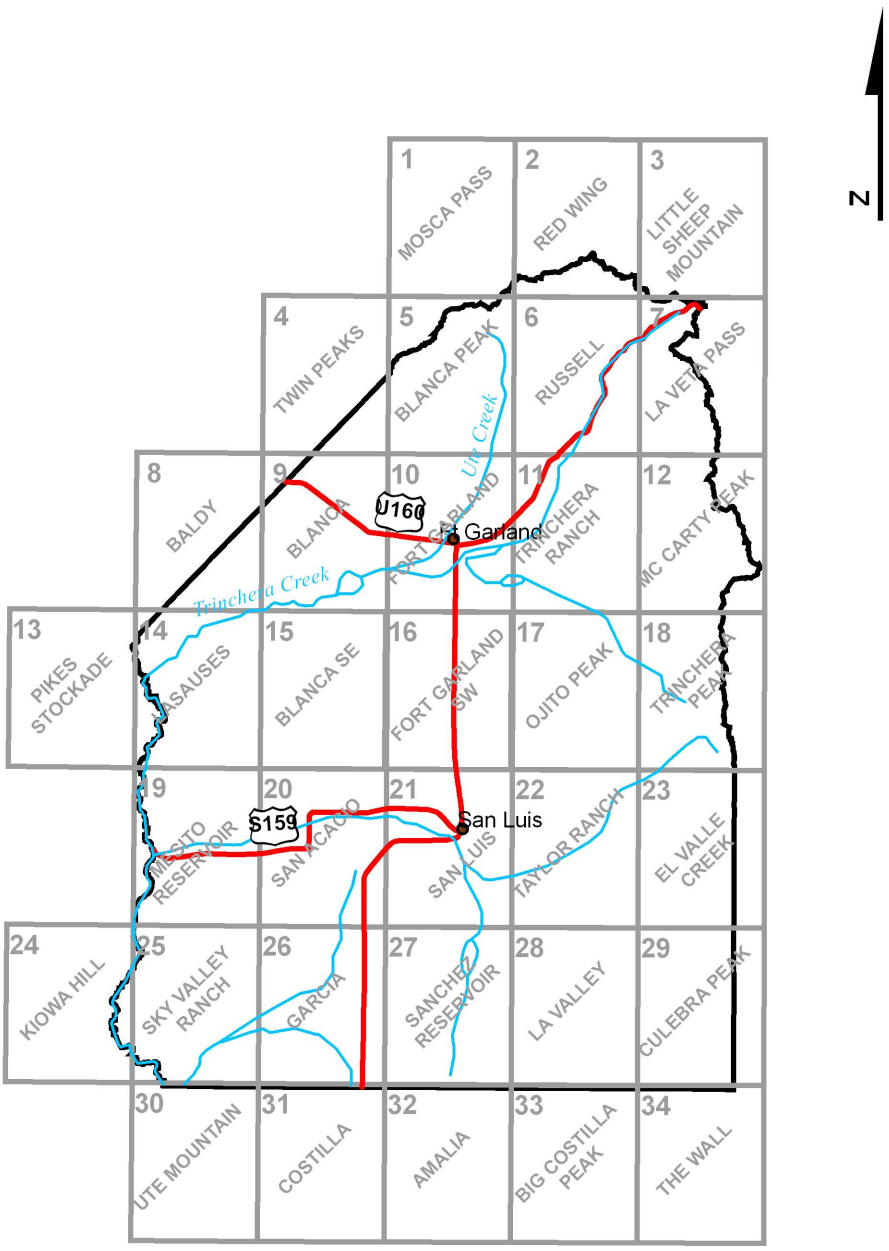
Table 25.--Taxonomic classification of the soils--continued

| Soil name | Family or higher taxonomic class |
|---|---|
| Mosca | Coarse-loamy, mixed, superactive, frigid Typic Natrargids |
| Potrio | Fine-loamy, mixed, superactive, frigid Calcidic Haplustalfs |
| Sanpedro | Loamy-skeletal, mixed, superactive, frigid Aridic Lithic Argiustolls |
| Scandard | Loamy-skeletal, mixed, superactive Ustollic Haplocryalfs |
| Seitz | Clayey-skeletal, smectitic Ustic Glossocryalfs |
| Shawa | Fine-loamy, mixed, superactive, frigid Pachic Haplustolls |
| Stunner | Fine-loamy, mixed, superactive, frigid Ustic Calciargids |
| Tolvar | Loamy-skeletal, mixed, superactive Ustollic Glossocryalfs |
| Travelers | Loamy-skeletal, mixed, superactive, frigid Lithic Ustic Haplocalcids |
| Trinchera | Fine-loamy, mixed, superactive, frigid Ustic Calciargids |
| Uracca | Loamy-skeletal, mixed, superactive, frigid Calcidic Argiustolls |
| Vastine | Fine-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Typic Endoaquolls |
| Ventero | Loamy, mixed, euic, frigid Terric Haplohemists |
| Woodhall | Loamy-skeletal, mixed, superactive Ustic Argicryolls |

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# INDEX TO MAP SHEETS
# COSTILLA COUNTY AREA, COLORADO




SECTIONALIZED TOWNSHIP

| | | | | | |
|---|---|---|---|---|---|
| 6 | 5 | 4 | 3 | 2 | 1 |
| 7 | 8 | 9 | 10 | 11 | 12 |
| 18 | 17 | 16 | 15 | 14 | 13 |
| 19 | 20 | 21 | 22 | 23 | 24 |
| 30 | 29 | 28 | 27 | 26 | 25 |
| 31 | 32 | 33 | 34 | 35 | 36 |

0 3.5 7 14 21 28 Miles

0 5,500 11,000 22,000 33,000 44,000 Meters

September 2007

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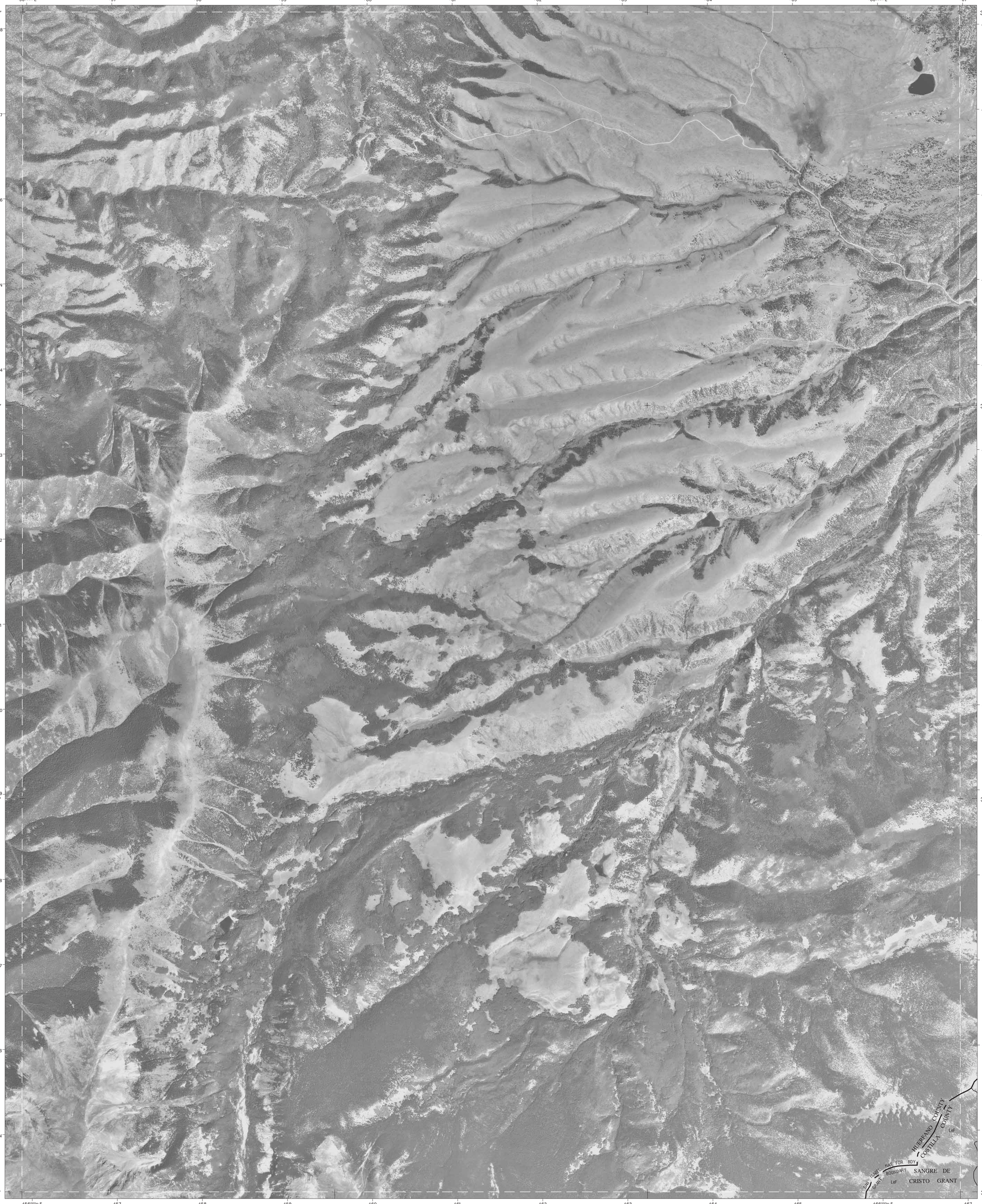
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COSTILLA COUNTY AREA, COLORADO
MOSCA PASS QUADRANGLE
SHEET NUMBER 1 OF 33

105°30′00″ 105°27′30″ 105°25′00″ 105°22′30″

456000m E 457 458 459 460 461 462 463 464 465 466000m E 467

37°45′00″ 4178 4177 4176 4175000m N 4174 37°42′30″ 4173 4172 4171 4170 4169 37°40′00″ 4168 4167 4166 4165000m N 37°37′30″




456000m E 457 458 459 460 461 462 463 464 465 466000m E 467

105°30′00″ 105°27′30″ 105°25′00″ 105°22′30″

*Joins sheet 5 Blanca Peak*

*Joins sheet 4 Twin Peaks*

*Joins sheet 6 Russell*

*Joins sheet 2 Red Wing*

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1998 - 1999 aerial photography. Hydrography was derived from the USGS National Hydrography Dataset. Administrative boundaries were acquired from the State of Colorado. Hydrography and Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

| | | | |
|---|---|---|---|
| | | | |
| | | 2 | 2 RED WING |
| 4 | 5 | 6 | 4 TWIN PEAKS |
| | | | 5 BLANCA PEAK |
| | | | 6 RUSSELL |

INDEX TO ADJOINING 7.5 MAPS

## MOSCA PASS, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 1 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

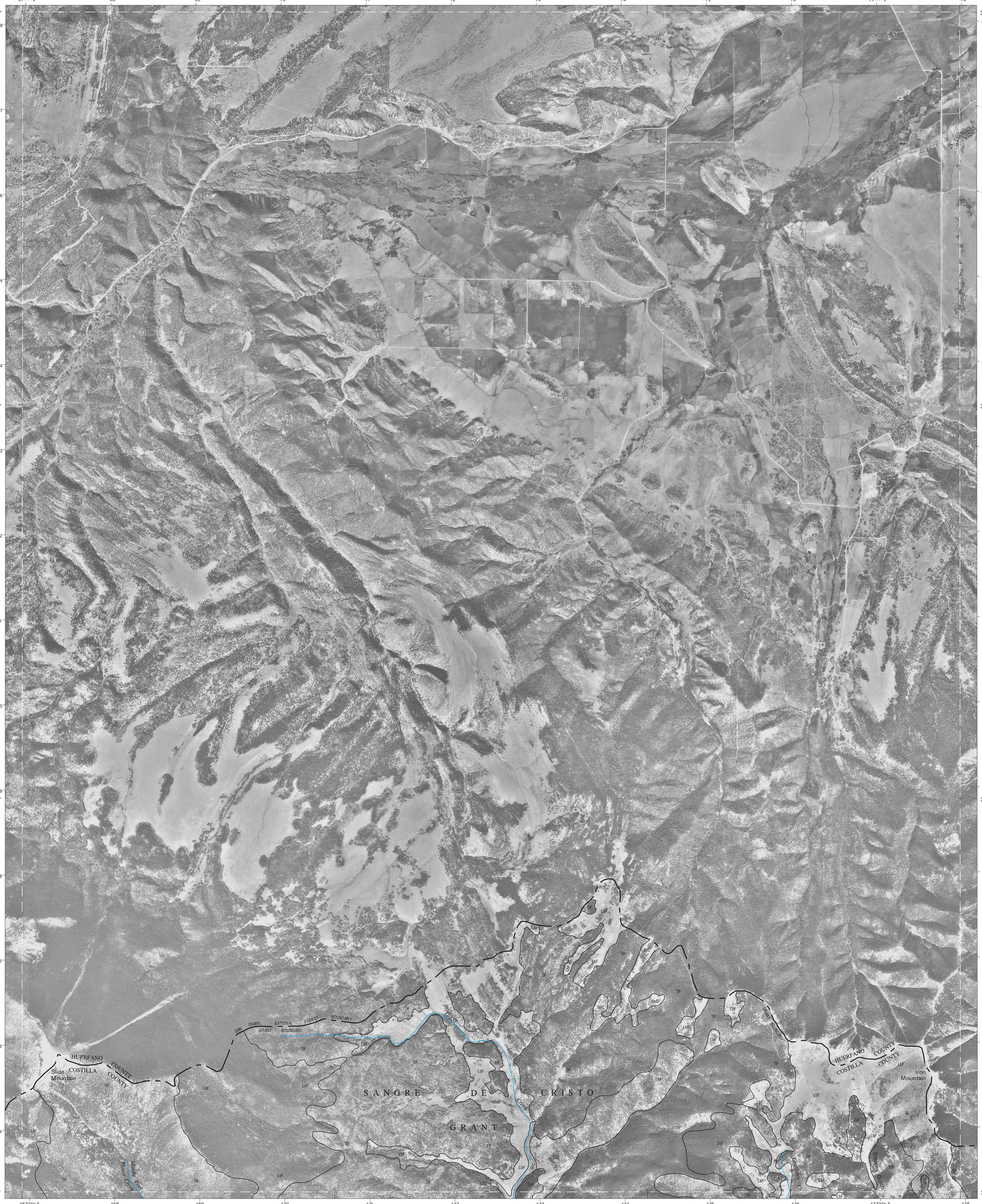
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COSTILLA COUNTY AREA, COLORADO
RED WING QUADRANGLE
SHEET NUMBER 2 OF 33

105°22′30″ 105°20′00″ 105°17′30″ 105°15′00″

467000m E 468 469 470 471 472 473 474 475 476 477000m E 478

37°45′00″ 41 78 41 77 41 76 41 75000m N 41 74 37°42′30″ 41 73 41 72 41 71 41 70 41 69 37°40′00″ 41 68 41 67 41 66 41 65000m N 37°37′30″




Joins sheet 1 Mosca Pass

Joins sheet 3 Little Sheep Mountain

Joins sheet 5 Blanca Peak

Joins sheet 6 Russell

Joins sheet 7 La Veta Pass

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

| | | |
|---|---|---|
| | | |
| 1 | | 3 |
| 5 | 6 | 7 |

1 MOSCA PASS
3 LITTLE SHEEP MOUNTAIN
5 BLANCA PEAK
6 RUSSELL
7 LA VETA PASS

INDEX TO ADJOINING 7.5 MAPS

## RED WING, COLORADO

7.5 MINUTE SERIES
SHEET NUMBER 2 OF 33

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COSTILLA COUNTY AREA, COLORADO
LITTLE SHEEP MOUNTAIN QUADRANGLE
SHEET NUMBER 3 OF 33

105°15′00″ 105°12′30″ 105°10′00″ 105°07′30″

37°45′00″ 37°42′30″ 37°40′00″ 37°37′30″

4178000m E 4179 4180 4181 4182 4183 4184 4185 4186 4187 4188000m E 4189

4175000m N

*Joins sheet 2 Red Wing*

*Joins sheet 7 La Veta Pass*

*Joins sheet 6 Russell*

HUERFANO CO
COSTILLA CO
SANGRE DE CRISTO TF GRANT
GRANT BDY
LbF

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North American Datum of 1983(NAD83). GRS80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 13.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

| | | |
|---|---|---|
| | | |
| 2 | | |
| 6 | 7 | |

2 RED WING
6 RUSSELL
7 LA VETA PASS

INDEX TO ADJOINING 7.5 MAPS

## LITTLE SHEEP MOUNTAIN, COLORADO

7.5 MINUTE SERIES
SHEET NUMBER 3 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
## TWIN PEAKS QUADRANGLE
## SHEET NUMBER 4 OF 33

*Joins sheet 1 Mosca Pass*

105°37′30″ — 105°35′00″ — 105°32′30″ — 105°30′00″

37°37′30″ — 37°35′00″ — 37°32′30″ — 37°30′00″

*Joins sheet 5 Blanca Peak*

*Joins sheet 8 Baldy*

*Joins sheet 9 Blanca*

*Joins sheet 10 Fort Garland*

ALAMOSA COUNTY
COSTILLA COUNTY

GRANT
SANGRE DE CRISTO

RIO GRANDE NATIONAL FOREST BOUNDARY

GRANT BOUNDARY

Tobin Creek

Blanco Creek

Barbara Cr

CsA
McB
AmC
EaA
Ho
LeF
RF
CuF
UrF

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

| | | | | |
|---|---|---|---|---|
| | | 1 | 1 | MOSCA PASS |
| | | 5 | 5 | BLANCA PEAK |
| | | | 8 | BALDY |
| 8 | 9 | 10 | 9 | BLANCA |
| | | | 10 | FORT GARLAND |

## TWIN PEAKS, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 4 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
# BLANCA PEAK QUADRANGLE
SHEET NUMBER 5 OF 33

Joins sheet 1 Mosca Pass

Joins sheet 2 Red Wing

Joins sheet 4 Twin Peaks

Joins sheet 6 Russell

Joins sheet 9 Blanca

Joins sheet 10 Fort Garland

Joins sheet 11 Trinchera Ranch

105°30′00″ 105°27′30″ 105°25′00″ 105°22′30″

37°37′30″ 37°35′00″ 37°32′30″ 37°30′00″

4156000m E 57 58 59 60 61 62 63 64 65 4166000m E 67

4164 4163 4162 4161000m N 60 59 58 57 56 55 54 53 52 51000m N

SANGRE DE CRISTO

GRANT

Iron Nipple

Mount Lindsey

Blanca Peak

Little Bear Peak

Hamilton Peak

Windchell Lakes

Blanca Basin

Little Burro Park Creek

Baker Canyon

Cottonwood Creek

Ute Creek

Blanca Creek

Ikes Creek

Barbara Creek

East Fork Ute Creek

BLANCA

SIERRA

HUERFANO COUNTY

COSTILLA COUNTY

ALAMOSA COUNTY

GRANT BOUNDARY

SAN ISABEL NATIONAL FOREST BOUNDARY

RIO GRANDE NATIONAL FOREST BOUNDARY

RF LeF TlF ToF LbF SzF ShC MuC ShA UmF AmE AmC RrB BtD McB CuF UrF

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North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

| | | |
|---|---|---|
| | 1 | 2 |
| 4 | | 6 |
| 9 | 10 | 11 |

1 MOSCA PASS
2 RED WING
4 TWIN PEAKS
6 RUSSELL
9 BLANCA
10 FORT GARLAND
11 TRINCHERA RANCH

INDEX TO ADJOINING 7.5 MAPS

## BLANCA PEAK, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 5 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
# RUSSELL QUADRANGLE
# SHEET NUMBER 6 OF 33

Joins sheet 1 Mosca Pass

Joins sheet 2 Red Wing

Joins sheet 3 Little Sheep Mountain

Joins sheet 5 Blanca Peak

Joins sheet 7 La Veta Pass

Joins sheet 10 Fort Garland

Joins sheet 11 Trinchera Ranch

Joins sheet 12 McCarty Park

105°22′30″ 105°20′00″ 105°17′30″ 105°15′00″

37°37′30″ 37°35′00″ 37°32′30″ 37°30′00″

467000m E 468 469 470 471 472 473 474 475 476 477000m E 478

41 64 41 63 41 62 41 61000m N 41 60 41 59 41 58 41 57 41 56 41 55 41 54 41 53 41 52 41 51000m N

SANGRE DE CRISTO GRANT

Lone Rock Hill

Buck Mountain

Russell

Middle Fork Placer Creek

East Fork Ute Creek

South Fork Placer Creek

Bronco Dan Gulch

Kennedy Gulch

Mullo Creek

Spring Gulch

Flume Gulch

Strawberry Gulch

Graybuck Creek

Spring Gulch

Mill Creek

Palmer Gulch

Spanish Gulch

Sangre de Cristo Creek

Placer Creek

Willow Creek

Stems Gulch

Buckskin Gulch

Canyon

Baker Canyon

Gomez Gulch

Sawmill Gulch

Cottonwood Gulch

Black Canyon

Arlen Creek

Missouri Creek

Coyote Canyon

Fox Canyon

Rito Creek

Western Rio Grande and Denver Wagon Road

160

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

NORTH

QUADRANGLE LOCATION

| | | |
|---|---|---|
| 1 | 2 | 3 |
| 5 | | 7 |
| 10 | 11 | 12 |

1 MOSCA PASS
2 RED WING
3 LITTLE SHEEP MOUNTAIN
5 BLANCA PEAK
7 LA VETA PASS
10 FORT GARLAND
11 TRINCHERA RANCH
12 MCCARTY PARK

INDEX TO ADJOINING 7.5 MAPS

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North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

## RUSSELL, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 6 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 2 Red Wing

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
# LA VETA PASS QUADRANGLE
# SHEET NUMBER 7 OF 33

Joins sheet 3 Little Sheep Mountain

Joins sheet 6 Russell

Joins sheet 11 Trinchera Ranch

Joins sheet 12 McCarty Park

105°15′00″ — 105°12′30″ — 105°10′00″ — 105°07′30″

37°37′30″ — 37°35′00″ — 37°32′30″ — 37°30′00″

478000m E — 479 — 480 — 481 — 482 — 483 — 484 — 485 — 486 — 487 — 488000m E — 489

41 64 — 41 63 — 41 62 — 41 61000m N — 41 60 — 41 59 — 41 58 — 41 57 — 41 56 — 41 55 — 41 54 — 41 53 — 41 52 — 41 51000m N

SANGRE DE CRISTO

GRANT

HUERFANO COUNTY
COSTILLA COUNTY

McDowell Park Creek
Cristo Creek
Sangre de Cristo
Stearns Gulch
Blind Canyon
Black Canyon
Swift Creek
Arlen Gulch
Missouri Creek
Vega Canyon
Mexican Canyon
Wagon Toll Canyon
Chimney Canyon
Wagon Mesa
Fox Canyon

North La Veta Pass

160

LbF — TlF — TlD — ToF — CuF — Aq — VgA — SzF — MuC — MuE — UmF — ShC

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

| | | |
|---|---|---|
| 2 | 3 | |
| 6 | | |
| 11 | 12 | |

2 RED WING
3 LITTLE SHEEP MOUNTAIN
6 RUSSELL
11 TRINCHERA RANCH
12 MCCARTY PARK

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## LA VETA PASS, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 7 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COSTILLA COUNTY AREA, COLORADO
BALDY QUADRANGLE
SHEET NUMBER 8 OF 33

Joins Sheet 4 Twin Peaks

105°45′00″ 105°42′30″ 105°40′00″ 105°37′30″

4434000m E 35 36 37 38 39 40 41 42 43 4444000m E

37°30′00″

41 50 41 49 41 48 41 47000m N 41 46

37°27′30″

41 45 41 44 41 43 41 42

37°25′00″

41 41 41 40 41 39 41 38 41 37000m N

37°22′30″

ALAMOSA COUNTY
COSTILLA COUNTY
GRANT BOUNDARY
DENVER AND RIO GRANDE WESTERN

SANGRE DE CRISTO

GRANT

MsA CsA Hp Ho CsD TvD TvF DrD

Joins sheet 9 Blanca

Joins sheet 13 Lasauses

Joins sheet 14 Blanca SE

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

| | | | |
|---|---|---|---|
| | | 4 | 4 TWIN PEAKS |
| | | 9 | 9 BLANCA |
| | 13 | 14 | 13 LASAUSES<br>14 BLANCA SE |

INDEX TO ADJOINING 7.5 MAPS

# BALDY, COLORADO

7.5 MINUTE SERIES
SHEET NUMBER 8 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
## BLANCA QUADRANGLE
## SHEET NUMBER 9 OF 33

Joins sheet 5 Blanca Peak

Joins sheet 4 Twin Peaks

105°37′30″ — 105°35′00″ — 105°32′30″ — 105°30′00″

37°30′00″ — 37°27′30″ — 37°25′00″ — 37°22′30″

4145000m E — 46 — 47 — 48 — 49 — 50 — 51 — 52 — 53 — 54 — 4155000m E

41 50 — 41 49 — 41 48 — 41 47000m N — 41 46 — 41 45 — 41 44 — 41 43 — 41 42 — 41 40 — 41 39 — 41 38 — 41 37000m N

ALAMOSA COUNTY
COSTILLA COUNTY
GRANT BOUNDARY

SANGRE DE CRISTO GRANT

DENVER AND RIO GRANDE WESTERN

BLANCA AIRPORT

Blanca
McClintock

SMITH RESERVOIR

Basaltic Hills

Blanca Creek
Ikes Creek
Trinchera Creek
Costilla de Trinchera Creek

160
GP
W

MsA CsA GpA Ho Hp McB EaA BfD McC McA CtA CsD TvD TvF FtA EmC KbC DrD BfA

Joins sheet 8 Baldy

Joins sheet 10 Fort Garland

Joins sheet 13 Lasauses

Joins sheet 14 Blanca SE

Joins sheet 15 Fort Garland SW

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North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

| | | |
|---|---|---|
| | 4 | 5 |
| 8 | | 10 |
| 13 | 14 | 15 |

4 TWIN PEAKS
5 BLANCA PEAK
8 BALDY
10 FORT GARLAND
13 LASAUSES
14 BLANCA SE
15 FORT GARLAND SW

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## BLANCA, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 9 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
# FORT GARLAND QUADRANGLE
# SHEET NUMBER 10 OF 33

Joins sheet 4 Twin Peaks
Joins sheet 5 Blanca Peak
Joins sheet 6 Russell
Joins sheet 9 Blanca
Joins sheet 11 Trinchera Ranch
Joins sheet 14 Blanca SE
Joins sheet 15 Fort Garland SW
Joins sheet 16 Ojito Peak

105°30′00″ 105°27′30″ 105°25′00″ 105°22′30″
37°30′00″ 37°27′30″ 37°25′00″ 37°22′30″
456000m E 457 458 459 460 461 462 463 464 465 466000m E
4147000m N

SANGRE DE CRISTO GRANT

Blanca
Fort Garland
DENVER AND RIO GRANDE WESTERN
Rio Grande Creek
Cottonwood Creek
Sangre de Cristo Creek
Trinchera Creek
Mountain Home Reservoir
DAM
160
159

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

| | | | | |
|---|---|---|---|---|
| 4 | 5 | 6 | 4 | TWIN PEAKS |
| | | | 5 | BLANCA PEAK |
| | | | 6 | RUSSELL |
| 9 | | 11 | 9 | BLANCA |
| | | | 11 | TRINCHERA RANCH |
| | | | 14 | BLANCA SE |
| 14 | 15 | 16 | 15 | FORT GARLAND SW |
| | | | 16 | OJITO PEAK |

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## FORT GARLAND, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 10 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COSTILLA COUNTY AREA, COLORADO
TRINCHERA RANCH QUADRANGLE
SHEET NUMBER 11 OF 33

Joins sheet 5 Blanca Peak

Joins sheet 6 Russell

Joins sheet 7 La Veta Pass

Joins sheet 10 Fort Garland

Joins sheet 12 McCarty Park

Joins sheet 15 Fort Garland SW

Joins sheet 16 Ojito Peak

Joins sheet 17 Trinchera Peak

105°22′30″ — 105°20′00″ — 105°17′30″ — 105°15′00″

37°30′00″ — 37°27′30″ — 37°25′00″ — 37°22′30″

467000m E — 468 — 469 — 470 — 471 — 472 — 473 — 474 — 475 — 476 — 477000m E — 478

41 50 — 41 49 — 41 48 — 41 47000m N — 41 46 — 41 45 — 41 44 — 41 43 — 41 42 — 41 41 — 41 40 — 41 39 — 41 38 — 41 37000m N

Mortimer
Garland City
SANGRE DE CRISTO GRANT
Cat Mountain
Mountain Home Reservoir
Cottonwood Gulch
Sawmill Gulch
Western Canal
Grande Canal
Denver Canal
Trinchera Creek
Bear Creek
West Indian Creek
Trinchera Creek
Trinchera Creek
South Fork Squirrel Canyon
North Fork
American Gulch
Bear Creek
Creek
160

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

| | | | | |
|---|---|---|---|---|
| 5 | 6 | 7 | 5 | BLANCA PEAK |
| 10 | | 12 | 6 | RUSSELL |
| 15 | 16 | 17 | 7 | LA VETA PASS |
| | | | 10 | FORT GARLAND |
| | | | 12 | MCCARTY PARK |
| | | | 15 | FORT GARLAND SW |
| | | | 16 | OJITO PEAK |
| | | | 17 | TRINCHERA PEAK |

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TRINCHERA RANCH, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 11 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COSTILLA COUNTY AREA, COLORADO
MCCARTY PARK QUADRANGLE
SHEET NUMBER 12 OF 33

Joins sheet 7 La Veta Pass

105°15′00″ 105°12′30″ 105°10′00″ 105°07′30″
37°30′00″ 37°27′30″ 37°25′00″ 37°22′30″
478000m E 479 480 481 482 483 484 485 486 487 488000m E 489
41 50 41 49 41 48 41 47000m N 41 46 41 45 41 44 41 43 41 42 41 41 41 40 41 39 41 38 41 37000m N

Joins sheet 11 Trinchera Ranch

Joins sheet 16 Ojito Peak

Joins sheet 17 Trinchera Peak

Coyote Canyon
Fox Canyon
Elk Park
Bear Creek
Indian Park
Indian Creek
Blind American Canyon
Gulch
Wagon Creek
McCARTY Park
Indian Creek
West Fork
SANGRE DE CRISTO GRANT
South Fork
Sawmill Canyon
Raspberry Mountain
Harrison Peak
Napoleon Peak
North Fork
Trinchera Creek
COSTILLA COUNTY
HUERFANO COUNTY
GRANT BOUNDARY
SAN ISABEL NATIONAL FOREST BOUNDARY

CuF TlF TlD LbF ToF SzF Aq LeF VgA MR W

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North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

| | | | |
|---|---|---|---|
| 6 | 7 | | 6 RUSSELL<br>7 LA VETA PASS |
| 11 | | | 11 TRINCHERA RANCH |
| 16 | 17 | | 16 OJITO PEAK<br>17 TRINCHERA PEAK |

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## MCCARTY PARK, COLORADO

7.5 MINUTE SERIES
SHEET NUMBER 12 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
# LASAUSES QUADRANGLE
# SHEET NUMBER 13 OF 33

Joins sheet 8 Baldy
Joins sheet 9 Blanca
Joins sheet 14 Blanca SE
Joins sheet 18 Mesito Reservoir
Joins sheet 19 San Acacio

105°45′00″ 105°42′30″ 105°40′00″ 105°37′30″
37°22′30″ 37°20′00″ 37°17′30″ 37°15′00″
4234000m E 35 36 37 38 39 40 41 42 43 4244000m E
41 36 41 35 41 34 41 33000m N 41 32 41 31 41 30 41 29 41 28 41 27 41 26 41 25 41 24 41 23000m N

ALAMOSA COUNTY
COSTILLA COUNTY
CONEJOS COUNTY
GRANT BOUNDARY
Trinchera Creek
RIO GRANDE
SANGRE DE CRISTO
GRANT
SAN LUIS HILLS

CsA CsD Ho MsA MtA EaA VgA CtA TvF GpA Hp W

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North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

| | | |
|---|---|---|
| | 8 | 9 |
| | | 14 |
| | 18 | 19 |

8 BALDY
9 BLANCA
14 BLANCA SE
18 MESITO RESERVOIR
19 SAN ACACIO

INDEX TO ADJOINING 7.5 MAPS

## LASAUSES, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 13 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
# BLANCA SE QUADRANGLE
# SHEET NUMBER 14 OF 33

Joins sheet 8 Baldy
Joins sheet 9 Blanca
Joins sheet 10 Fort Garland
Joins sheet 13 Lasauses
Joins sheet 15 Fort Garland SW
Joins sheet 18 Mesita Reservoir
Joins sheet 19 San Acacio
Joins sheet 20 San Luis

105°37′30″ 105°35′00″ 105°32′30″ 105°30′00″
37°22′30″ 37°20′00″ 37°17′30″ 37°15′00″
4145000m E 4146 4147 4148 4149 4150 4151 4152 4153 4154 4155000m E
4133000m N 4132 4131 4130 4129 4128 4127 4126 4125 4124 4123000m N

SANGRE DE CRISTO GRANT

BASALTIC HILLS

SAN LUIS HILLS

Trinchera

CsA CsD CtA DrD EaA GpA McA McB McC MfC RfD RrD TvD TvF

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North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

| | | | |
|---|---|---|---|
| 8 | 9 | 10 | 8 BALDY<br>9 BLANCA<br>10 FORT GARLAND |
| 13 | | 15 | 13 LASAUSES<br>15 FORT GARLAND SW |
| 18 | 19 | 20 | 18 MESITO RESERVOIR<br>19 SAN ACACIO<br>20 SAN LUIS |

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## BLANCA SE, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 14 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
# FORT GARLAND SW QUADRANGLE
# SHEET NUMBER 15 OF 33

Joins sheet 9 Blanca
Joins sheet 10 Fort Garland
Joins sheet 11 Trinchera Ranch
Joins sheet 14 Blanca SE
Joins sheet 16 Ojito Peak
Joins sheet 19 San Acacio
Joins sheet 20 San Luis
Joins sheet 21 Taylor Ranch

105°30′00″ 105°27′30″ 105°25′00″ 105°22′30″
37°22′30″ 37°20′00″ 37°17′30″ 37°15′00″
456000m E 457 458 459 460 461 462 463 464 465 466000m E
41 36 41 35 41 34 41 33000m N 41 32 41 31 41 30 41 29 41 28 41 27 41 26 41 25 41 24 41 23000m N

BASALTIC HILLS
SANGRE DE CRISTO GRANT
Ojito Creek
Willow Creek Reservoir
159

BfA BfD GrA GrC KbA KbC McA McB McC MuC MuE RrB RrD SfF SpD SpF StB ShA ShC TvD TvF UrF

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North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

| | | | |
|---|---|---|---|
| 9 | 10 | 11 | 9 BLANCA<br>10 FORT GARLAND<br>11 TRINCHERA RANCH |
| 14 | | 16 | 14 BLANCA SE<br>16 OJITO PEAK |
| 19 | 20 | 21 | 19 SAN ACACIO<br>20 SAN LUIS<br>21 TAYLOR RANCH |

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## FORT GARLAND SW, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 15 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
# OJITO PEAK QUADRANGLE
# SHEET NUMBER 16 OF 33

Joins sheet 10 Fort Garland
Joins sheet 11 Trinchera Ranch
Joins sheet 12 McCarty Park
Joins sheet 15 Fort Garland SW
Joins sheet 17 Trinchera Peak
Joins sheet 20 San Luis
Joins sheet 21 Taylor Ranch
Joins sheet 22 El Valle Creek

105°22′30″ 105°20′00″ 105°17′30″ 105°15′00″
37°22′30″ 37°20′00″ 37°17′30″
4167000m E 468 469 470 471 472 473 474 475 476 4177000m E 478
41 36 41 35 41 34 41 33000m N 41 32 41 31 41 30 41 29 41 28 41 27 41 26 41 25 41 24 41 23000m N

SANGRE DE CRISTO GRANT

Ojito Peak

Willow Creek Reservoir

Big Meadow

Ojito Creek
North Trinchera Creek
Trinchera Canyon
Squirrel Creek
Rito Seco

MuE MuC RrD ShC UrF ShA RrB AmC CuF SzF LbF ToF LeF TlF VgA MR Aq M

SCALE 1:24000

1 0 1 MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 KILOMETERS

NORTH

QUADRANGLE LOCATION

| | | |
|---|---|---|
| 10 | 11 | 12 |
| 15 | | 17 |
| 20 | 21 | 22 |

10 FORT GARLAND
11 TRINCHERA RANCH
12 MCCARTY PARK
15 FORT GARLAND SW
17 TRINCHERA PEAK
20 SAN LUIS
21 TAYLOR RANCH
22 EL VALLE CREEK

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## OJITO PEAK, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 16 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
# TRINCHERA PEAK QUADRANGLE
SHEET NUMBER 17 OF 33

Joins sheet 12 McCarty Park

105°15′00″ 105°12′30″ 105°10′00″ 105°07′30″
478000m E 479 480 481 482 483 484 485 486 487 488000m E 489
37°22′30″ 41 36 41 35 41 34 41 33000m N 41 32 37°20′00″ 41 31 41 30 41 29 41 28 37°17′30″ 41 27 41 26 41 25 41 24 41 23000m N 37°15′00″

Joins sheet 16 Ojito Peak

Squirrel Canyon
Trinchera Creek
Deep Canyon
Apache Canyon
Banana Canyon
Rito Seco
Big Meadow
El Poso Creek
Jarroso Canyon
Teddys Peak
Trinchera Peak
Baccerro Basin
Cuatro Peak
SANGRE DE CRISTO GRANT
COSTILLA COUNTY
HUERFANO COUNTY
LAS ANIMAS COUNTY
SAN ISABEL NATIONAL FOREST BOUNDARY
GRANT BOUNDARY

SzF Sierozem loam, 3 to 9 percent slopes
CuF Cushman loam, 3 to 9 percent slopes
LbF Las Animas clay loam, 3 to 9 percent slopes
TlF Travessilla-Rock outcrop complex, 3 to 9 percent slopes
ToF Travessilla-Rock outcrop complex, 9 to 25 percent slopes
LeF Las Animas-Rock outcrop complex, 9 to 25 percent slopes
MR Rock outcrop
RF Rock outcrop-Las Animas complex
Aq Aquolis, ponded

Joins sheet 21 Taylor Ranch

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North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

| | | | |
|---|---|---|---|
| 11 | 12 | | 11 TRINCHERA RANCH<br>12 MCCARTY PARK |
| 16 | | | 16 OJITO PEAK |
| 21 | 22 | | 21 TAYLOR RANCH<br>22 EL VALLE CREEK |

INDEX TO ADJOINING 7.5 MAPS

## TRINCHERA PEAK, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 17 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 22 El Valle Creek

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
# MESITO RESERVOIR QUADRANGLE
SHEET NUMBER 18 OF 33

Joins sheet 14 Blanca SE

Joins sheet 13 Lasauses

105°45′00″ — 105°42′30″ — 105°40′00″ — 105°37′30″

37°15′00″ — 37°12′30″ — 37°10′00″ — 37°07′30″

4134000m E — 35 — 36 — 37 — 38 — 39 — 40 — 41 — 42 — 43 — 4144000m E

4119000m N — 41 18 — 41 17 — 41 16 — 41 15 — 41 14 — 41 13 — 41 12 — 41 11 — 41 10 — 4109000m N

Joins sheet 19 San Acacio

Joins sheet 24 Sky Valley Ranch

Joins sheet 23 Kiowa Hill

Joins sheet 25 Garcia

Music Mesa

Death Valley

HILLS

BROWNIE HILLS

SAN LUIS HILLS

SANGRE DE CRISTO

GRANT

Culebra Creek

Mesito Reservoir

GRANT BOUNDARY

RIO GRANDE

CONEJOS COUNTY

COSTILLA COUNTY

142

CsA, CsD, CtA, GpA, McA, McB, McC, TvD, TvF, VgA, W

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North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

| | | | |
|---|---|---|---|
| | 13 | 14 | 13 LASAUSES<br>14 BLANCA SE |
| | | 19 | 19 SAN ACACIO<br>23 KIOWA HILL<br>24 SKY VALLEY RANCH<br>25 GARCIA |
| 23 | 24 | 25 | |

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## MESITO RESERVOIR, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 18 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 13 Lasauses

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COSTILLA COUNTY AREA, COLORADO
SAN ACACIO QUADRANGLE
SHEET NUMBER 19 OF 33

Joins sheet 15 Fort Garland SW

Joins sheet 14 Blanca SE

105°37′30″ — 105°35′00″ — 105°32′30″ — 105°30′00″

37°15′00″ — 37°12′30″ — 37°10′00″ — 37°07′30″

SAN LUIS HILLS

SANGRE DE CRISTO GRANT

San Acacio

Viejo San Acacio

Culebra Creek

Stabilization Reservoir

Joins sheet 18 Mesito Reservoir

Joins sheet 20 San Luis

Joins sheet 24 Sky Valley Ranch

Joins sheet 25 Garcia

Joins sheet 26 Sanchez Reservoir

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North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

| | | | | |
|---|---|---|---|---|
| 13 | 14 | 15 | 13 | LASAUSES |
| | | | 14 | BLANCA SE |
| | | | 15 | FORT GARLAND SW |
| 18 | | 20 | 18 | MESITO RESERVOIR |
| | | | 20 | SAN LUIS |
| | | | 24 | SKY VALLEY RANCH |
| 24 | 25 | 26 | 25 | GARCIA |
| | | | 26 | SANCHEZ RESERVOIR |

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SAN ACACIO, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 19 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
# SAN LUIS QUADRANGLE
# SHEET NUMBER 20 OF 33

Joins sheet 14 Blanca SE
Joins sheet 15 Fort Garland SW
Joins sheet 16 Ojito Peak
Joins sheet 19 San Acacio
Joins sheet 21 Taylor Ranch
Joins sheet 25 Garcia
Joins sheet 26 Sanchez Reservoir
Joins sheet 27 La Valley

105°30′00″ 105°27′30″ 105°25′00″ 105°22′30″
37°15′00″ 37°12′30″ 37°10′00″ 37°07′30″
456000m E 457 458 459 460 461 462 463 464 465 466000m E
4119000m N 41 22 41 21 41 20 41 18 41 17 41 16 41 15 41 14 41 13 41 12 41 11 41 10 41 09000m N

SAN PEDRO MESA
SANGRE DE CRISTO
GRANT

Culebra Creek
Salzar Reservoir
Rio
Ute Creek
Valdez Creek
Cabresto Creek
Los Fuertes Creek

San Luis
San Pedro
San Pablo
Chama
Los Fuertes

159 142 152 242 M W

McA McB McC RrA RrB RrD TvF TpD TpF SpD PtC SrC EaA FtA VgA AmC AmE KbA ShC UrF GrA StB

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

| | | | |
|---|---|---|---|
| 14 | 15 | 16 | 14 BLANCA SE<br>15 FORT GARLAND SW<br>16 OJITO PEAK |
| 19 | | 21 | 19 SAN ACACIO<br>21 TAYLOR RANCH |
| 25 | 26 | 27 | 25 GARCIA<br>26 SANCHEZ RESERVOIR<br>27 LA VALLEY |

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## SAN LUIS, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 20 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COSTILLA COUNTY AREA, COLORADO
TAYLOR RANCH QUADRANGLE
SHEET NUMBER 21 OF 33



105°22′30″ 105°20′00″ 105°17′30″ 105°15′00″
467000m E 468 469 470 471 472 473 474 475 476 477000m E
37°15′00″ 41 22 41 21 41 20 41 19000m N 37°12′30″ 41 18 41 17 41 16 41 15 37°10′00″ 41 14 41 13 41 12 41 11 41 10 41 09000m N 37°07′30″

SANGRE DE CRISTO GRANT

Rito Seco
Creek
Pedregoso
Creek
Culebra
Creek
Cuchilla Alta
Creek
Vallejos
Creek
North Vallejos
Creek
WHISKEY PASS ROAD
Chama
Los Fuertes
Puertesito
152

Joins sheet 20 San Luis
Joins sheet 22 El Valle Creek
Joins sheet 26 Sanchez Reservoir
Joins sheet 27 La Valley
Joins sheet 28 Culebra Peak

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North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

| | | |
|---|---|---|
| 15 | 16 | 17 |
| 20 | | 22 |
| 26 | 27 | 28 |

15 FORT GARLAND SW
16 OJITO PEAK
17 TRINCHERA PEAK
20 SAN LUIS
22 EL VALLE CREEK
26 SANCHEZ RESERVOIR
27 LA VALLEY
28 CULEBRA PEAK

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TAYLOR RANCH, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 21 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COSTILLA COUNTY AREA, COLORADO
EL VALLE CREEK QUADRANGLE
SHEET NUMBER 22 OF 33

Joins sheet 16 Ojito Peak

Joins sheet 17 Trinchera Peak

Joins sheet 21 Taylor Ranch

Joins sheet 27 La Valley

Joins sheet 28 Culebra Peak

105°15′00″ 105°12′30″ 105°10′00″ 105°07′30″

37°15′00″ 37°12′30″ 37°10′00″ 37°07′30″

478000m E 479 480 481 482 483 484 485 486 487 488000m E

41 22 41 21 41 20 41 19000m N 41 18 41 17 41 16 41 15 41 14 41 13 41 12 41 11 41 10 41 09000m N

Mount Maxwell
De Anza Peak
Whiskey Pass
Beaubien Peak
Francisco Peak
Lomo Liso Mountain
Lost Lake
Strawberry Lake
Miranda Peak
Carneros Lake

SANGRE DE CRISTO

COSTILLA COUNTY
LAS ANIMAS COUNTY
GRANT
GRANT BOUNDARY
MAXWELL

Canova Canyon
El Jarroso Canyon
El Poso Creek
El Pedregoso Creek
El Valle Creek
El Perdido Creek
El Culebra Creek
El Currumpa Creek
El Bernardino Creek
El Rito de Aban
Cuchilla Alta
North Vallejos Creek
Williams Creek
Abbot Creek

MR RF ToF LeF LbF SzF UrF MuC VoA ShC KbC Aq GmE Gm W SL

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

| | | | |
|---|---|---|---|
| 16 | 17 | | 16 OJITO PEAK<br>17 TRINCHERA PEAK |
| 21 | | | 21 TAYLOR RANCH |
| 27 | 28 | | 27 LA VALLEY<br>28 CULEBRA PEAK |

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EL VALLE CREEK, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 22 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COSTILLA COUNTY AREA, COLORADO
KIOWA HILL QUADRANGLE
SHEET NUMBER 23 OF 33

Joins sheet 18 Mesito Reservoir

105°52′30″ 105°50′00″ 105°47′30″ 105°45′00″

37°07′30″ 37°05′00″ 37°02′30″ 37°00′00″

4223000m E 24 25 26 27 28 29 30 31 32 4233000m E

41 09 41 08 41 07 41 06000m N 41 05 41 04 41 03 41 02 41 01 41 00 40 99 40 98 40 97 40 96000m N

CONEJOS COUNTY
COSTILLA COUNTY
COLORADO
NEW MEXICO
STATE BOUNDARY
GRANT
SANGRE DE CRISTO
Old State Bridge
Rio Grande

TvF TvD CsA McC McA W

Joins sheet 24 Sky Valley Ranch

Joins sheet 29 Ute Mountain

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North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

| | | | |
|---|---|---|---|
| | | 18 | 18 MESITO RESERVOIR |
| | | 24 | 24 SKY VALLEY RANCH |
| | | 29 | 29 UTE MOUNTAIN |

INDEX TO ADJOINING 7.5 MAPS

# KIOWA HILL, COLORADO

7.5 MINUTE SERIES
SHEET NUMBER 23 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
# SKY VALLEY RANCH QUADRANGLE
SHEET NUMBER 24 OF 33

Joins sheet 18 Mesito Reservoir

Joins sheet 19 San Acacio

Joins sheet 23 Kiowa Hill

Joins sheet 25 Garcia

Joins sheet 29 Ute Mountain

Joins sheet 30 Costilla

105° 45′ 00″ — 105° 42′ 30″ — 105° 40′ 00″ — 105° 37′ 30″

37° 07′ 30″ — 37° 05′ 00″ — 37° 02′ 30″ — 37° 00′ 00″

4 34 000m E — 4 35 — 4 36 — 4 37 — 4 38 — 4 39 — 4 40 — 4 41 — 4 42 — 4 43 — 4 44 000m E

41 09 — 41 08 — 41 07 — 41 06 — 41 05 — 41 04 — 41 03 — 41 02 — 41 01 — 41 00 — 40 99 — 40 98 — 40 97 — 40 96 000m N — 40 95 000m N

SANGRE DE CRISTO GRANT

Mesita Hill

Eastdale

Garcia Tank

Anderson Reservoir

Costilla Creek

RIO GRANDE

CONEJOS COUNTY

COSTILLA COUNTY

GRANT BOUNDARY

CsA CsD McA McB McC TvF TvD DrD GrA KbA RrA RrB RrD VgA AmC FLB

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

| | | | |
|---|---|---|---|
| | 18 | 19 | 18 MESITO RESERVOIR<br>19 SAN ACACIO |
| 23 | | 25 | 23 KIOWA HILL<br>25 GARCIA |
| | 29 | 30 | 29 UTE MOUNTAIN<br>30 COSTILLA |

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## SKY VALLEY RANCH, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 24 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 18 Mesita Reservoir

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COSTILLA COUNTY AREA, COLORADO
GARCIA QUADRANGLE
SHEET NUMBER 25 OF 33

Joins sheet 19 San Acacio

Joins sheet 20 San Luis

105°37′30″ — 105°35′00″ — 105°32′30″ — 105°30′00″

37°07′30″ — 37°05′00″ — 37°02′30″ — 37°00′00″

Joins sheet 24 Sky Valley Ranch

Joins sheet 26 Sanchez Reservoir

Joins sheet 29 Ute Mountain

Joins sheet 30 Costilla

Joins sheet 31 Amalia

Mesita
Jaroso
Garcia
EASTDALE RESERVOIR NUMBER 1
SANGRE DE CRISTO GRANT
SAN PEDRO MESA
Costilla Creek
248
159

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

| | | | |
|---|---|---|---|
| 18 | 19 | 20 | 18 MESITO RESERVOIR |
| 24 | | 26 | 19 SAN ACACIO |
| 29 | 30 | 31 | 20 SAN LUIS |
| | | | 24 SKY VALLEY RANCH |
| | | | 26 SANCHEZ RESERVOIR |
| | | | 29 UTE MOUNTAIN |
| | | | 30 COSTILLA |
| | | | 31 AMALIA |

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GARCIA, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 25 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COSTILLA COUNTY AREA, COLORADO
SANCHEZ RESERVOIR QUADRANGLE
SHEET NUMBER 26 OF 33

Joins sheet 19 San Acacio
Joins sheet 20 San Luis
Joins sheet 21 Taylor Ranch
Joins sheet 25 Garcia
Joins sheet 27 La Valley
Joins sheet 30 Costilla
Joins sheet 31 Amalia
Joins sheet 32 Big Costilla Peak

105°30′00″ 105°27′30″ 105°25′00″ 105°22′30″
37°07′30″ 37°05′00″ 37°02′30″ 37°00′00″
4056000m E 4057 4058 4059 4060 4061 4062 4063 4064 4065 4066000m E
41 08 41 07 41 06 41 05000m N 41 04 41 03 41 02 41 01 41 00 40 99 40 98 40 97 40 95000m N

MESA
PEDRO
SAN
SANGRE DE CRISTO
GRANT
SANCHEZ RESERVOIR
Ventero Creek
San Francisco Creek
Toreido Creek
Jaroso Creek
Ventero
Jaroso Creek
Willow Creek
Juanacito Creek
Cuates Creek
242

PtC Peterson-Rock outcrop complex, 3 to 15 percent slopes
SpD Spring Creek-Peterson complex, 3 to 15 percent slopes
TpD Travessilla-Rock outcrop complex, 3 to 15 percent slopes
RrD Rock outcrop-Travessilla complex, 3 to 15 percent slopes
RrB Rock outcrop-Travessilla complex, 1 to 5 percent slopes
AmC Amalia-Rock outcrop complex, 3 to 15 percent slopes
TpF Travessilla-Rock outcrop complex, 15 to 50 percent slopes
SpF Spring Creek-Peterson complex, 15 to 50 percent slopes
StB Stout-Rock outcrop complex, 1 to 5 percent slopes
StC Stout-Rock outcrop complex, 5 to 15 percent slopes
SoF Sopris-Rock outcrop complex, 15 to 50 percent slopes
KbA Kutch-Rock outcrop complex, 0 to 3 percent slopes
TvF Travessilla-Rock outcrop complex, 50 to 80 percent slopes
W Water
FtA Fluvaquentic Haplaquolls, 0 to 3 percent slopes
EaA Ea loam, 0 to 3 percent slopes
VeA Ventero loam, 0 to 3 percent slopes
ShA Shawcreek loam, 0 to 3 percent slopes
GrA Gravelly alluvial land, 0 to 3 percent slopes
KbC Kutch-Rock outcrop complex, 3 to 15 percent slopes
GrC Gravelly alluvial land, 3 to 15 percent slopes
MuE Mutz-Rock outcrop complex, 15 to 50 percent slopes
UrF Ustic Torriorthents-Rock outcrop complex, 15 to 80 percent slopes
LbF Lithic Haplocambids-Rock outcrop complex, 15 to 80 percent slopes
AmE Amalia-Rock outcrop complex, 15 to 50 percent slopes
CoF Costilla-Rock outcrop complex, 15 to 50 percent slopes
MoE Mutz-Rock outcrop complex, 3 to 15 percent slopes

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North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

| | | |
|---|---|---|
| 19 | 20 | 21 |
| 25 | | 27 |
| 30 | 31 | 32 |

19 SAN ACACIO
20 SAN LUIS
21 TAYLOR RANCH
25 GARCIA
27 LA VALLEY
30 COSTILLA
31 AMALIA
32 BIG COSTILLA PEAK

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SANCHEZ RESERVOIR, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 26 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 20 San Luis

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COSTILLA COUNTY AREA, COLORADO
LA VALLEY QUADRANGLE
SHEET NUMBER 27 OF 33

Joins sheet 22 El Valle Creek

Joins sheet 21 Taylor Ranch

105°22′30″ 105°20′00″ 105°17′30″ 105°15′00″

37°07′30″ 37°05′00″ 37°02′30″ 37°00′00″

467000m E 468 469 470 471 472 473 474 475 476 477000m E

4105000m N 4104 4103 4102 4101 4100 4099 4098 4097 4096 4095000m N

Joins sheet 26 Sanchez Reservoir

Joins sheet 28 Culebra Peak

Joins sheet 31 Amalia

Joins sheet 32 Big Costilla Peak

Joins sheet 33 The Wall

La Valley

SANGRE DE CRISTO GRANT

San Francisco Creek
Vallejos Creek
North Vallejos Creek
Vallejos Creek
Rito Azul
Alamosito Creek
Torcido Creek
Jaroso Creek
Cuates Creek
Willow Creek
San Francisco Creek
El Frijoso Creek
Jaroso Creek
West Fork Costilla Creek

242

StC StB KbA KbC KbA FtA GrA GrC AmC VgA MuE MuC MoE CuF ShC UrF SzF LbF ToF LeF RF MR W

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North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

| | | | |
|---|---|---|---|
| 20 | 21 | 22 | 20 SAN LUIS<br>21 TAYLOR RANCH<br>22 EL VALLE CREEK |
| 26 | | 28 | 26 SANCHEZ RESERVOIR<br>28 CULEBRA PEAK |
| 31 | 32 | 33 | 31 AMALIA<br>32 BIG COSTILLA PEAK<br>33 THE WALL |

INDEX TO ADJOINING 7.5 MAPS

LA VALLEY, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 27 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COSTILLA COUNTY AREA, COLORADO
CULEBRA PEAK QUADRANGLE
SHEET NUMBER 28 OF 33

Joins sheet 21 Taylor Ranch

Joins sheet 22 El Valle Creek

Joins sheet 27 La Valley

Joins sheet 32 Big Costilla Peak

Joins sheet 33 The Wall

105°15′00″ — 105°12′30″ — 105°10′00″ — 105°07′30″

37°07′30″ — 37°05′00″ — 37°02′30″ — 37°00′00″

Culebra Peak

Red Mountain

Vermejo Peak

Purgatoire Peak

Leandro Lake

Devils Park

North Vallejos Creek

Vallejos Creek

Las Vegas Creek

Valleras Creek

Almagosita Creek

Johnson Creek

El Fragoso Creek

Costilla Creek

East Fork Costilla Creek

Ricardo Creek

Little Vermejo Creek

GRANT BOUNDARY

COSTILLA COUNTY
LAS ANIMAS COUNTY

SANGRE DE CRISTO GRANT

MAXWELL GRANT

SzF — LeF — ToF — MR — RF — RfE — SL — LH — LbF

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North American Datum of 1983(NAD83), GRS80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 13.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

| | | | |
|---|---|---|---|
| 21 | 22 | | 21 TAYLOR RANCH<br>22 EL VALLE CREEK |
| 27 | | | 27 LA VALLEY |
| 32 | 33 | | 32 BIG COSTILLA PEAK<br>33 THE WALL |

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CULEBRA PEAK, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 28 OF 33

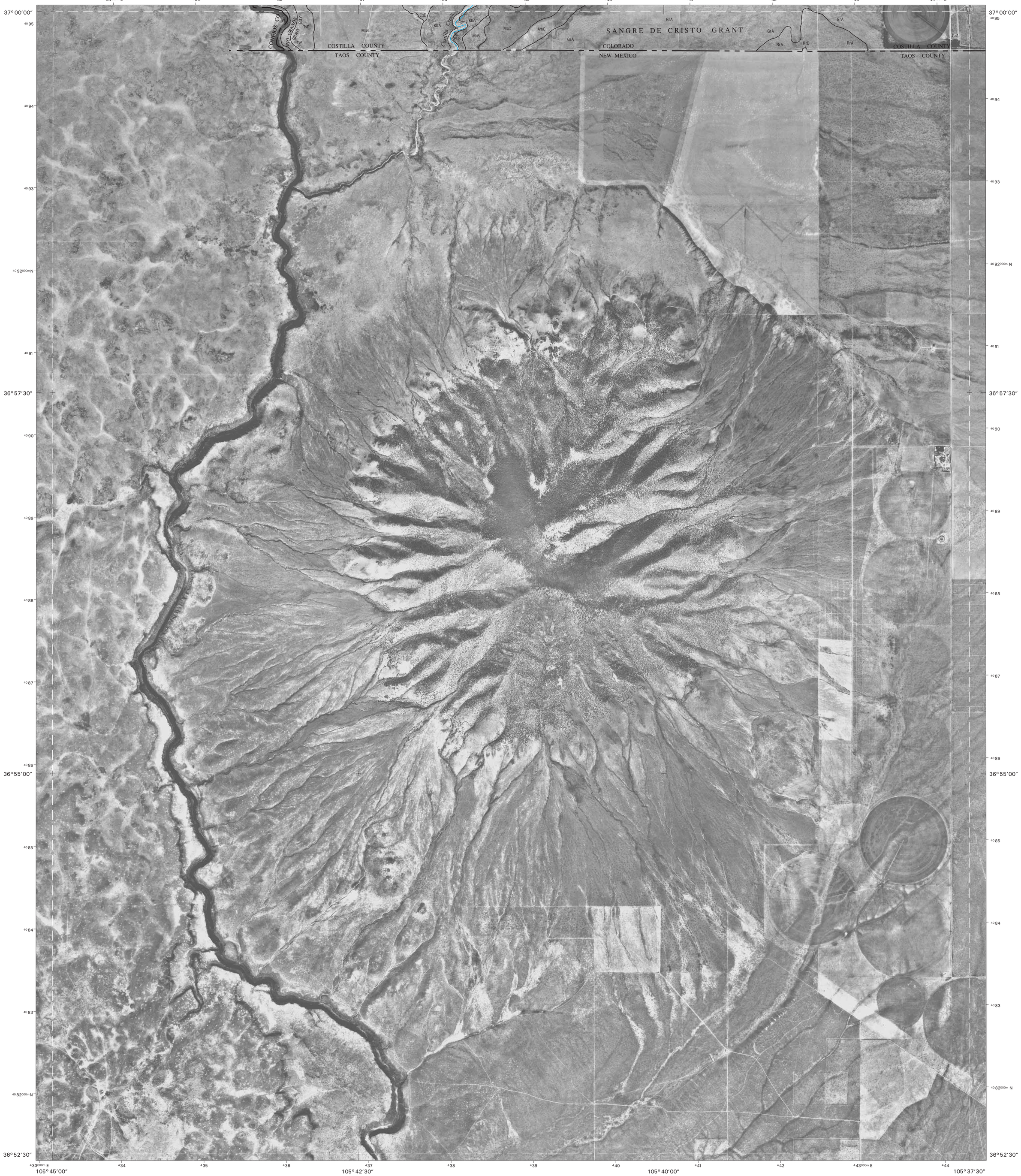
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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
# UTE MOUNTAIN QUADRANGLE
# SHEET NUMBER 29 OF 33

Joins sheet 23 Kiowa Hill
Joins sheet 24 Sky Valley Ranch
Joins sheet 25 Garcia
Joins sheet 30 Costilla

105°45′00″ 105°42′30″ 105°40′00″ 105°37′30″
37°00′00″ 36°57′30″ 36°55′00″ 36°52′30″




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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

| | | | |
|---|---|---|---|
| 23 | 24 | 25 | 23 KIOWA HILL<br>24 SKY VALLEY RANCH<br>25 GARCIA |
| | | 30 | 30 COSTILLA |

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## UTE MOUNTAIN, COLORADO
7.5 MINUTE SERIES
SHEET NUMBER 29 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
# COSTILLA QUADRANGLE
SHEET NUMBER 30 OF 33

Joins sheet 24 Sky Valley Ranch
Joins sheet 25 Garcia
Joins sheet 26 Sanchez Reservoir
Joins sheet 29 Ute Mountain
Joins sheet 31 Amalia

105°37′30″ 105°35′00″ 105°32′30″ 105°30′00″
37°00′00″ 36°57′30″ 36°55′00″ 36°52′30″
4095 4094 4093 4092000m N 4091 4090 4089 4088 4087 4086 4085 4084 4083 4082000m N
445000m E 446 447 448 449 450 451 452 453 454 455000m E

SANGRE DE CRISTO GRANT
COLORADO
NEW MEXICO
COSTILLA COUNTY
TAOS COUNTY
Costilla Cr
159
GrA KbA AmC PtC PtF Pm FtB

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

| | | | |
|---|---|---|---|
| 24 | 25 | 26 | 24 SKY VALLEY RANCH<br>25 GARCIA<br>26 SANCHEZ RESERVOIR |
| 29 | | 31 | 29 UTE MOUNTAIN<br>31 AMALIA |

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7.5 MINUTE SERIES
SHEET NUMBER 30 OF 33

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DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
# AMALIA QUADRANGLE
# SHEET NUMBER 31 OF 33

Joins sheet 25 Garcia
Joins sheet 26 Sanchez Reservoir
Joins sheet 27 La Valley
Joins sheet 30 Costilla
Joins sheet 32 Big Costilla Peak

105°30′00″ 105°27′30″ 105°25′00″ 105°22′30″
37°00′00″ 36°57′30″ 36°55′00″ 36°52′30″
4056000m E 4057 4058 4059 4060 4061 4062 4063 4064 4065 4066000m E
4095 4094 4093 4092000m N 4091 4090 4089 4088 4087 4086 4085 4084 4083 4082000m N
4091000m N 4081000m N

SAN PEDRO MESA
SANGRE DE CRISTO GRANT
COSTILLA COUNTY
TAOS COUNTY
COLORADO
NEW MEXICO
Ventero Creek
Jarosito Creek

TpF PtC SpD StB KbA TpD GrA GrC StC CuE AmE MuE SzF

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

| | | | |
|---|---|---|---|
| 25 | 26 | 27 | 25 GARCIA<br>26 SANCHEZ RESERVOIR<br>27 LA VALLEY |
| 30 | | 32 | 30 COSTILLA<br>32 BIG COSTILLA PEAK |
| | | | |

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DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
# BIG COSTILLA PEAK QUADRANGLE
# SHEET NUMBER 32 OF 33



Joins sheet 27 La Valley

105°22′30″ 105°20′00″ 105°17′30″ 105°15′00″
37°00′00″ 36°57′30″ 36°55′00″ 36°52′30″
467000m E 468 469 470 471 472 473 474 475 476 477000m E
4094 4093 4092 4091 000m N 4090 4089 4088 4087 4086 4085 4084 4083 4082 4081 000m N

SANGRE DE CRISTO GRANT
COSTILLA COUNTY
TAOS COUNTY
COLORADO
NEW MEXICO
State Line Peak
Glacier Lakes
Willow Creek
West Costilla
East Fork
MuE SzF ToF LeF RF MR LDF

Joins sheet 31 Amalia

Joins sheet 33 The Wall

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

| | | | |
|---|---|---|---|
| 26 | 27 | 28 | 26 SANCHEZ RESERVOIR<br>27 LA VALLEY<br>28 CULEBRA PEAK<br>31 AMALIA<br>33 THE WALL |
| 31 | | 33 | |
| | | | |

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## BIG COSTILLA PEAK, COLORADO
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UNITED STATES
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NATURAL RESOURCES CONSERVATION SERVICE

# COSTILLA COUNTY AREA, COLORADO
# THE WALL QUADRANGLE
# SHEET NUMBER 33 OF 33

Joins sheet 27 La Valley

Joins sheet 28 Culebra Peak

105°15′00″ 105°12′30″ 105°10′00″ 105°07′30″

37°00′00″ 36°57′30″ 36°55′00″ 36°52′30″

4078000m E 79 80 81 82 83 84 85 86 87 88000m E 89

4094 4093 4092 4091 000m N 4090 4089 4088 4087 4086 4085 4084 4083 4082 4081 000m N

SANGRE DE CRISTO GRANT

GRANT BOUNDARY

COSTILLA COUNTY

COLFAX COUNTY

MAXWELL GRANT

COLORADO
NEW MEXICO

Rito Seco

Ricardo Creek

COSTILLA CO
LAS ANIMAS CO

LeF LbF

Joins sheet 32 Big Costilla Peak

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

| | | | |
|---|---|---|---|
| | | | 27 LA VALLEY |
| 27 | 28 | | 28 CULEBRA PEAK |
| 32 | | | 32 BIG COSTILLA PEAK |
| | | | |

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